DOTS-
sure cure for TB.

Managing the Revised National Tuberculosis Control Programme in your area

A Training Course

Modules 5 - 9

- Registering Cases & Monitoring Treatment
- Recording And Reporting System For Monitoring RNTCP
- Conducting Supervisory Visit
- Ensuring Logistics of Drugs And Other Quality Material And Quality Assurance
- Implementing The Programme

सत्यमेव जयते

Central TB Division
Directorate General of Health Services, Ministry of Health and Family Welfare
Nirman Bhavan, New Delhi 110011

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April 2005

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TM-120

CONTENTS

Module 5:
Registering Cases & Monitoring Treatment

SECTION – I: REGISTERING CASES

INTRODUCTION

In the "Administering Treatment" module, we discussed about the details of treatment and importance of maintaining tuberculosis treatment cards. Treatment Cards of the patients are available at the health facility where the patient is initiated on treatment. To keep track of all TB patients, who are put on DOTS and non DOTS treatment regimens, both must be registered in the same tuberculosis register.

This module will describe how the patients are registered in the tuberculosis register and also what should be done when patients are not registered.

You will learn how to make sure that all smear-positive patients are registered and also to ensure that each patient who has a treatment card is registered in the tuberculosis register.

The tuberculosis register is maintained by the STS (Senior Treatment Supervisor) at the TU (Tuberculosis Unit) level. All TB patients, who are put on DOTS and non-DOTS, must be registered in the Tuberculosis Register so that all the patients in the unit are monitored. The STS should register the patients as early as possible, and in no case more than a month after starting treatment. The TB register should be updated during the monthly visits to the PHI. The information for registration and updating the Tuberculosis Register is collected from the Tuberculosis Treatment Card.

All patients treated for TB should be registered, but pulmonary smear-positive patients are the most important source of infection and have one of the most severe forms of the disease. For this reason, a special effort should be made to place all smear-positive patients on chemotherapy and register them.

It is essential that the Tuberculosis Register is accurate and up-to-date. Quarterly Reports are completed from the Tuberculosis Register and are the primary means of programme monitoring. All patients who receive non-DOTS regimens in DOTS areas must also be recorded in the Tuberculosis Register. This includes smear-positive, smear-negative and extra-pulmonary TB patients. It is very important to register **every patient** who is starting treatment for tuberculosis under RNTCP in the Tuberculosis Register. Make sure the information on the patient's Tuberculosis Treatment Card is correct before writing it in the Tuberculosis Register. There is information on the Tuberculosis Treatment Card that is not on the Tuberculosis Register, such as name and address of contact person. This information should also be verified for completeness and accuracy at this time.

A Tuberculosis Register should be kept at each Tuberculosis Unit. There is no need for a "master" Tuberculosis Register which contains patient information from each of the Tuberculosis Units. In fact, creating such a Tuberculosis Register will cause problems, because errors may be made in transcribing information. Furthermore, it is possible that information may be placed in one Tuberculosis Register and not in the other. Finally, maintaining a "master" Tuberculosis Register will be extremely time consuming and is unnecessary. All essential information from each sub district is summarized in Quarterly Reports and sent to the district. If patients are transferred from one Tuberculosis Unit to another, a Transfer Form is completed, and a copy of the Treatment Card is sent. To report on the outcomes of all such patients, information should be exchanged during regular meetings of the STSs.

A tuberculosis register will be kept at each TB unit.

STS is responsible for registration of all cases and maintaining the TB register.

The STS will carry the register with them on their supervisory visits.

TUBERCULOSIS REGISTER

The Tuberculosis Register is used to record the following information about the patient:

- Tuberculosis Number (TB No.)
- Date of registration
- Name (in full), address and sex
- Name of PHI
- Date of starting treatment
- Regimen/Category
- Disease classification
- Type of patient
- Details of sputum examinations
- Treatment outcome with date
- Remarks
- Summary

Tuberculosis number

Each patient who is being registered is assigned a new Tuberculosis Number and this number is written in the Tuberculosis Register. Start with the number 1 at the beginning of every year and register patients serially. After you write the patient's TB No. in the Tuberculosis Register, write this number on his Tuberculosis Treatment Card too. When you use the Tuberculosis Treatment Card to record information in the Tuberculosis Register (for example, the results of sputum examinations), you can easily identify the patient in the Tuberculosis Register by referring to their TB No. An individual TB patient may have more than one TB number if he is reregistered (e.g. after declaring him as default and restarting on treatment afresh or after declaring as failure and initiating on category II, details of which will be recorded in the remarks column).

The STS should write the TB number in the following records:

TB register

TB treatment card

TB laboratory register (Remarks column)

Example:

Today is 14 March and 3 patients are to be registered. The last TB No. in the Tuberculosis Register is 64. The 3 patients are assigned Tuberculosis Numbers 65, 66, and 67.

Date of registration

Write the date the patient is registered in the Tuberculosis Register. The date should be written as: day/month/year (for example 22 May 2004 would be written as 22/5/2004). This is the date used for determining a 'quarterly cohort' for case finding, smear conversion and treatment outcome reports.

Name (in full), Sex, Age, Complete Address

This information can be found in a patient's Tuberculosis Treatment Card. Make sure the information is correct before you write it in the Tuberculosis Register.

Name of PHI

The name of the centre where the patient is initiated on treatment (i.e., where the original card is kept) should be written on the **PHI** line of the patient's Tuberculosis Treatment Card. If this information is not on the Tuberculosis Treatment Card, ask the patient or the health worker to provide you with this information. Then record the name

of the treatment centre in the Tuberculosis Register and on the patient's Tuberculosis Treatment Card.

Date of starting treatment

To determine if the patient has started treatment, look at the drug administration table at the bottom of his Tuberculosis Treatment Card. If a box has been ticked, the patient has already started treatment. The first box that is ticked (√) is the **first** day that the drugs were administered to the patient. Write the date the patient has been started on treatment on the first line of this column. Enter the date as: date/month/year (for example 09 April 2004 would be written as 9/4/2004). The date of starting treatment will either precede or be the same as the date of registration but will never be after the date of registration. Thus, some patients who may be started on treatment in the last few days of one quarter, say 1st Quarter 2005, may be registered in the next quarter, viz., 2nd Quarter 2005. Such patients would be considered to be a part of the cohort of 2nd Quarter 2005. However, in no case should patients be registered later than one month from date of starting treatment.

Regimen/Category

To determine which treatment regimen was assigned to the patient, look on the patient's Tuberculosis Treatment Card under the **Intensive Phase** section. One of the boxes will be ticked to indicate whether the patient was assigned Category I (CAT I), Category II (CAT II) or Category III (CAT III) for DOTS treatment; or Non DOTS Regimen 1 (ND1) or Non DOTS Regimen 2 (ND2) for non-DOTS treatment.

Write the treatment regimen (CAT I, CAT II, CAT III, ND1 or ND2) in this column in the Tuberculosis Register.

Patients often begin treatment before they are registered. The STS registers patients who began treatment in a health facility or hospital during his periodic supervisory visit.

Disease classification

Write **P** if the patient has pulmonary TB. Write **EP** if the patient has extra pulmonary TB. This information is on the patient's Tuberculosis Treatment Card under the **Disease Classification**. In the rare case of a patient who has both smear-positive pulmonary and extra-pulmonary TB s/he should be classified as pulmonary.

Type of Patient

Look at the patient's Tuberculosis Treatment Card under **Type of Patient** to determine whether the patient is a New case, Relapse, Transfer in, Failure, Treatment After

Default, or Others. Write the appropriate **Type of Patient** in the Tuberculosis Register in the column "Type of Patient".

For a patient classified as Others, specify the reason in the **Remarks** column.

Details of Sputum examination

Write the results of the patient's pretreatment sputum examination in the **Pretreatment Sputum Examination** column. This information is on the patient's Tuberculosis Treatment Card in the table giving results of sputum examination. Enter the smear result, laboratory number with name of DMC and the date of sputum examination under appropriate columns in the TB register. Similarly results of follow sputum examinations are also recorded (details are given in monitoring treatment section)

Treatment Outcome with date

Description of treatment outcome is given later

Remarks

This column is for entries such as:

- Site -in case of EP
- X-ray reports for Smear-negative patients
- Method of diagnosis, histopathological and other results in case of EP
- Transfer details
- In case of Cat – II patients: write old TB number (i.e. TB number when patient was on Cat I or III) and whether taken treatment in past under RNTCP or non RNTCP
- In case of failure and defaulted patients of Cat I and Cat III, if they are re-registered later for Cat II treatment: write the new TB number.
- Reason for Non-DOTS treatment initiation

Summary

A box is provided at the bottom of the left-hand side of the Tuberculosis Register. It is for recording the number of patients, who are on DOTS as well as on non-DOTS, according to disease classification (new smear-positives, relapses, smear-negatives, extra-pulmonary). This data is necessary for completing Quarterly Reports on Programme Management and Logistics. However, in the Quarterly Reports on New and Re-treatment Cases, only those patients who are on DOTS should be reported. Ensure

that each and every patient started on anti-TB treatment is recorded in the Tuberculosis Register.

Another box is provided at the bottom of the right-hand side of the Tuberculosis Register. It is for recording treatment outcomes of registered DOTS patients (Cured, Treatment Completed, Died, Failure, Default or Transferred out). This data is necessary for completing Quarterly Reports on Results of Treatment.

Sometimes you might find that there are patients who **have not been registered** in the Tuberculosis Register. These are patients who:

- have been entered in the Tuberculosis Laboratory Register as smear-positive, but are not receiving treatment and have not been registered, or

- are receiving treatment and have a Tuberculosis Treatment Card, but have not been registered in the TB Register.

It is essential to trace the first type of patients (mentioned above) because they are not receiving treatment for TB. At least half of the smear-positive patients, if left untreated, would die from TB. In addition, each of these patients would spread TB infection to at least 10-15 healthy uninfected family members and other members of the community per year, as long as they live. These patients must be traced and placed on the appropriate treatment immediately.

The designated microscopy centre maintains a Tuberculosis Laboratory Register. In the Remarks column of this register, it should be noted if the patient has not started treatment, and the reason for this should be indicated. If the patient has been started on treatment, the patient's Tuberculosis Number should be written in the Remarks column of the Tuberculosis Laboratory Register.

Ensure that all patients started on treatment—both DOTS and non-DOTS—are registered in the *same* Tuberculosis Register.

During supervisory visits the STS and STLS should identify all such patients and make all efforts to have them placed on treatment. The Quarterly Report on Programme Management and Logistics collects information on the number of such patients.

Although the second type of patients (mentioned above) are receiving treatment (these patients have a Tuberculosis Treatment Card), they still need to be registered in the Tuberculosis Register so that you can quickly observe whether their treatment is effective and evaluate their treatment outcome. (The Monitoring Treatment **section** will describe how to monitor treatment by sputum smear examination.)

There are two ways of making sure that all patients are registered in the Tuberculosis Register:

- During visits to the microscopy centre, identify all smear-positive patients who are entered in the Tuberculosis Laboratory Register but who are not registered in the Tuberculosis Register.

- During supervisory visits to the hospitals and health facilities, identify any patients with Tuberculosis Treatment Cards who are not registered.

Registration of each TB patient facilitates:

- **Compilation of quarterly reports**
- **Cohort analysis**
- **Systematic monitoring**

Ensure that all sputum positive patients are traced and started on treatment

Prepare to visit the microscopy centre

To prepare for your visit to the microscopy centre, take the Tuberculosis Register with you.

Conduct visits to the Microscopy centre

During the previous visit, the STLS should have drawn a line (or any other mark) below the last entry reviewed. Find the last entry in the Tuberculosis Laboratory Register reviewed by the STLS. Then review the entries made since the last visit.

Cross match the entries for smear-positive patients (whose sputum samples were examined for diagnosis) between the TB register and TB Lab register viz. Lab No, Name and Address, Result and grading.

If there is only one positive smear result, contact the MO and ask if an X-ray examination was done. If an X-ray examination was not performed and treatment has not yet begun, the patient must be found, evaluated, and if appropriate, started on treatment.

Put a tick mark (in pencil) in the Lab Serial No. column of the TB Lab register for the cross-checked smear-positive cases, who also feature in the Tuberculosis Register.

After each smear-positive patient in the Tuberculosis Register has been marked on the Tuberculosis Laboratory Register, identify cases without a mark. Confirm whether these diagnosed smear-positive cases are entered in the TB Register. If not, the patient is either yet to start treatment or has started treatment but yet to be registered.

All Patients who have been diagnosed as sputum smear-positive but have not been put on treatment within 7 days of diagnosis should be immediately traced. Using the address of the smear-positive patient, you or a health worker should try to locate the patient. Once the patient is found, explain to him the results of his laboratory test and make sure he begins treatment. Also, ensure that a Tuberculosis Treatment Card is completed for him. Conduct an initial health education session with him to make sure he understands the treatment required to cure him and the importance of taking all his drugs.

When visiting the microscopy centre

- **identify smear-positive patients who have not been registered**
- **trace these patients, start them on treatment and register**

Ensure that all Patients with Tuberculosis Treatment Cards are Registered

During supervisory visits to hospitals and health facilities, verify that each patient with a Tuberculosis Treatment Card (DOTS and non-DOTS) is also registered in the Tuberculosis Register. Since the STS is not always available to register patients every day, it is possible that some of the patients in the health facility have begun treatment but are not registered. This is important in order to verify that patients with smear-negative and extra-pulmonary TB have been registered, since these patients cannot be identified by reviewing patients with positive smears in the Tuberculosis Laboratory Register.

Look through all the Tuberculosis Treatment Cards at the health facility. If you see a card without a TB No., verify that this patient has been registered:

- On the patient's Tuberculosis Treatment Card, look at the **Date** column for pretreatment result in the 'Results of sputum examination' table. This is the date of the patient's pretreatment sputum examination. The patient should have been registered after this date.

- Find the pages of the Tuberculosis Register which correspond to the date of the pretreatment smear. For example, if the pretreatment sputum examination was on 15/6, look at the pages of the Tuberculosis Register for June and July.

- Start looking from this date in the **'Date of registration'** column of the Tuberculosis Register and look down the **Name** column for the patient's name or compare the dates with the dates in column for pretreatment sputum examination.

- If you find the patient's name in the Tuberculosis Register, make sure the general information on the Tuberculosis Treatment Card is the same as that in the Tuberculosis Register. Next, look at his Tuberculosis Number. Ask the STS to write this number on the **Patient TB No. / year** line in his Tuberculosis Treatment Card.

If you do not find the patient's name in the Tuberculosis Register, the patient has not been registered. Ask the STS to register the patient.

While looking through the Tuberculosis Treatment Cards, if you see a card with a **TB No.**, verify that this patient has been registered. The entries in this card should be verified with those of the patient with the same TB number in the TB register. If you find that the TB No. is for a different patient, cross it off the Tuberculosis Treatment Card. Then, locate the patient in the Tuberculosis Register by using the date of his pretreatment smear. When you locate the patient in the Register, write this **TB No.** on his Tuberculosis Treatment Card.

The patient will be evaluated in the quarter that he has been registered in. It is essential that patients are registered promptly after treatment begins, and in no case more than one month after the treatment is started.

EXERCISE – 1

USING WORKBOOK E3: TUBERCULOSIS REGISTER Complete one page of the **left-hand side** of the Tuberculosis Register, using the seven Treatment Cards you have recently completed. Registration dates are shown against the names. The last registration number in TB Register was 615.

Parvathi Sinha (Patient B) 9 September 2003

Lakshmi Kumari (Patient C) 17 September 2003

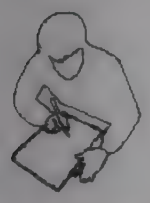
Lakshmi Pati Rao (Patient D) 17 September 2003

Kailash Nath (Patient F) 17 September 2003

Ghanshyam Singh (Patient I) 18 September 2003

Lallan Prasad Parmar (Patient L) 20 September 2003

Kiran Kumar (Patient O) 29 September 2003



EXERCISE – 2

Complete the Transfer Form on the next page for the appropriate patient from Module 4 /E2 (Administering Treatment).

Revised National Tuberculosis Control Programme

Transfer Form

(Fill in triplicate with carbon paper between the sheets. Send one copy to the TB Unit where the patient is transferred. Give one copy to the patient and retain one copy for the records.)

(a copy of treatment card may also be included along with transfer form given to the patient)

Name and Address of the transferring Unit (District/TB Unit): _____

_____

Name of Unit (District/TB Unit) to which patient is transferred (if known): _____

Name of the Patient: _____ **Sex: M ❑ F ❑** **Age:** _____

TB No: _____ **Date of starting treatment** _____

Disease Classification	**Type of Patient**	**Category of Treatment**	**Most Recent Sputum Status**
❑ Pulmonary	❑ New	❑ Category I	Date:
❑ Extra-Pulmonary	❑ Relapse	❑ Category II	DMC:
Site_____	❑ TAD	❑ Category III	Lab NO:
	❑ Failure		❑ Positive
	❑ Transfer in		❑ Negative
	❑ Other (Specify)		

Number of doses administered before transfer: IP _____ CP_____

Remarks:_____

_____Signature_____

Date transferred _____ Designation:_____

----------✂----------✂----------

For use by the receiving District/TB Unit **Date of outcome**_____

Name of patient_____

Old TB No (given at transferring TB Unit): _____ New TB No (given at receiving unit)_____

Treatment outcome ❑ Cured ❑ Treatment Completed ❑ Died
❑ Failure ❑ Defaulted ❑ Transferred Out

Date _____ Signature _____

(at the end of treatment send this form to the transferring District/TB Unit where the patient was initially registered.)

(a copy of treatment card after completion of treatment may be sent to the PHI of transferring the patient)

----------✂----------✂----------

For use by the receiving District/TB Unit in case the patient was received during IP

Name of patient:_____

Old TB No (given at transferring TB unit) : _____ New TB No (given at receiving unit):_____

Sputum Results at the end of IP : ❑ Positive ❑ Negative

Date _____ Signature _____

(at the end of Intensive phase this form has to be sent to the transferring District/TB Unit where the patient was initially registered.)

----------✂----------✂----------

For use by the receiving District/TB unit

Name of patient _____

Old TB No (given at Transferring TB unit)_____ New TB No (given at receiving Unit)_____

Age: _____Sex: M ❑ F ❑ Date of Transfer_____

Name of TB Unit:_____ District _____

The above –named reported at the TB unit on: _____

Signature _____ Designation _____ Date_____

(Send this part back to the transferring District/TB Unit as soon as the patient has reported and has been registered in the receiving TB Unit.)

EXERCISE 3

1. What information is recorded in the TB Register at the time of registration?

2. State if the following is true or false and explain your answer.
   For close monitoring of each TB patient, a master TB Register should be maintained at District TB Centre.

3. Who is responsible for registering patients and within what duration should the patients be registered?

4. List the records where the TB No. should be written.

5. Your STS reports that sputum examination results are missing in the Treatment Card because of which he/she did not complete entries in the TB Register. What is your advice?

6. How do you identify whether the patient found in the DMC lab register has been registered in the TB Register
   (a)

   (b)

7. State true or false:
   A patient was started on treatment on 20-3-2003. STS registered the patient on 13-4-2003. The patient will be reported in the cohort of the 2nd quarter 2003

SECTION – 2: MONITORING TREATMENT

INTRODUCTION

This section of the module describes the ways of monitoring treatment after patients are initiated on treatment and registered in the TB register. Tuberculosis patients, including those who have been treated in the past with anti-TB drugs, have a very good chance of being cured provided they are given the correct treatment regimen and they take the treatment regularly and for the full duration, under direct observation. Think of the cases registered in the Tuberculosis Register as participants in a race. Like watching participants in a foot race, the progress of TB patients can be watched as they move towards the finish line, i.e., monitoring their treatment as they progress towards the completion of chemotherapy and cure.

There are two ways to monitor TB patients:

1. Monitor the results of sputum smear examinations at regular intervals during treatment i.e., after 2 months of treatment in the intensive phase (end of 3 months for retreatment cases), after 2 months of the continuation phase, and at the end of treatment; and

2. Monitor the intake of drugs by the patient to ensure that these are taken as scheduled.

The best way to **monitor the treatment results of a pulmonary smear-positive case** is to check for the conversion of sputum from smear-positive to smear-negative. Sputum specimens of smear-positive cases will convert to smear-negative and will remain smear-negative if the patients take their prescribed medications on a regular basis for the required time period. The examination of sputum smears for conversion from positive to negative is the best indicator that the intensive phase of treatment is regular and effective.

After 2 months of chemotherapy more than 80% of new pulmonary smear-positive cases should become smear-negative, and after 3 months the rate of sputum conversion should increase to more than 90%. Pulmonary smear-positive relapse cases should have approximately the same rates of sputum conversion as new pulmonary smear-positive cases. Other smear-positive retreatment cases, such as failures of new sputum smear-positive cases at 5 months, may have sputum conversion rates of more than 75% after 3 months of receiving the retreatment regimen.

Another important indirect method of monitoring drug intake is to compare the drugs available in the patient-wise boxes vis-a-vis the drugs shown as consumed in the Tuberculosis Treatment Card.

To **monitor a pulmonary sputum smear-negative case**, check the drug administration chart on the patients Tuberculosis Treatment Card and see if he is regularly obtaining the drugs as scheduled. A patient's pretreatment sputum smear could have been read incorrectly as negative (false-negative smear examination). Therefore, to avoid possible errors when a pulmonary smear-negative case is diagnosed and begins treatment, his sputum smear should be examined at 2 months. Patients who were diagnosed as having sputum smear-negative TB but were placed on Category I treatment, if found to be smear-positive at the end of 2 months, should continue Category I treatment.

To **monitor an extra-pulmonary case**, check the regularity of drug collection in the same way as you would for pulmonary smear-negative cases. Patients with certain forms of extra-pulmonary TB (for instance, of the bones) should be seen by a specialist.

An accurate and complete Tuberculosis Register is important. It contains results of regular sputum examinations and the treatment outcome for each patient. This makes it possible to monitor the progress of the TB programme in your district in achieving at least 85% cure rate. The cure rate of 85% will result in a decrease in the rates of TB infection thereby decreasing the number of individuals likely to develop TB in your area.

Monitor regularity of sputum examinations

A **pulmonary smear-positive patient** should have his sputum examined by direct smear at the designated microscopy centre regularly after the start of treatment.

Sometimes a pulmonary smear-negative patient can become smear-positive because he does not take the prescribed drugs and the patient's condition may deteriorate; or, a patient may be incorrectly classified as smear-negative at the beginning of treatment. Therefore, a **pulmonary smear-negative patient** should have his sputum examined by direct smear at the DMC after completion of the intensive phase of treatment, i.e. at the end of 2 months. This is to make sure that the patient did not become smear-positive, or that he was not a false-negative case when he was registered. After the sputum examination at end of 2 months, a pulmonary smear-negative patient should have his sputum examined at the end of treatment.

It is your responsibility to make sure that sputum has been examined at the correct times during treatment and the results are recorded in the appropriate columns of the Tuberculosis Register. To monitor the regularity of sputum examinations, you should:

- Regularly identify pulmonary TB cases whose follow-up sputum examination is due and confirm that results of the examination have been recorded in the Tuberculosis Register;

- During supervisory visits to health facilities, review Tuberculosis Treatment Cards (or Laboratory Form for Sputum Examination) and compare the results of sputum smear examinations with those recorded in the Tuberculosis Register.

This section of the module will explain how to obtain the information you need and how to record it in the Tuberculosis Register.

Identify pulmonary TB cases whose results of sputum examinations need to be recorded in the TB register.

The results of sputum examinations should be verified during your supervisory visits to the treatment centres. Before going on a supervisory visit to a PHI review the Tuberculosis Register to identify cases that should have had their sputum examined.

Turn to the sample of a Tuberculosis Register (see Exercise Workbook E3).

Refer to it throughout the rest of this module.

1. Look at the columns in the **'follow up sputum examination'** section on the right side of the TB Register for blanks or partially completed information. Then look back across the row to the columns **Name, Name of Treatment Centre, Date of starting treatment** and **Category on the left side**. For cases at the treatment centre you plan to visit, find the date on which treatment was started and the treatment regimen.

2. Compare the approximate date calculated with the current date. If the date you estimated has already passed, then the sputum smear should have been examined. The results should be on the approximate date on which a sputum smear should have been examined.

3. To the date when the treatment regimen was started, indicated in the **Date of starting treatment** and **Treatment category** column of the Tuberculosis Register, add the appropriate number of months. For example, to find the approximate date at the end of month 2, when the sputum smear examination should have been performed, add 2 months to the date of starting treatment.

4. Look back across the row to the columns: **TB No.** and **Name** in the Tuberculosis Register. Make a note of the patient's name and Tuberculosis Number. If you cannot take the Tuberculosis Register with you on a supervisory visit, list on a sheet of paper the names of cases category-wise, Tuberculosis Numbers and the dates when their treatment started. See the example of such a list on the next page. The visit has been made on 19th November 2003.

Months of treatment	Category I	Category II	Categories III
End of 2 months	Shilpa Sharma TB No. 132 16/9/03		
End of 3 months		Ram Lal TB No. 121 16/8/03	
2 months in continuation phase	Meena Singh TB No. 73 15/7/03		
End of treatment		Raj Kumari TB No. 45 5/3/03	Kondaiah TB No. 60 5/5/03

Also, when you are identifying cases whose results of sputum examinations should be recorded, review the Tuberculosis Register to determine whether the proportion of the **New** and **Relapse pulmonary smear-positive** cases at the treatment centre who have **converted to pulmonary smear-negative** by the end of their intensive phase is adequate (85% or more).

Review the tuberculosis register

Look down the columns **Disease class (P/EP), Type of Patient,** and **Pretreatment Smear**. Look for pulmonary smear-positive New, Relapse, treatment after default and Failure case. For each pulmonary smear-positive New, Relapse, TAD or Failure cases you find look across the row to the column **End of IP.** Determine if the results of sputum smear examination was positive or negative at the end of the intensive phase. Then, add together the cases who converted to smear-negative. Divide that number by the number of cases registered for each type of patients. Multiply the resulting number by 100 to get the percentage. If you determine that the smear conversion rate is less then 85% for New cases, you will need to investigate why the conversion rate at 2(3) months is low. This can be done during your supervisory visits.

Example:
In Kheonjar District 220 New smear-positive patients were registered in a quarter, 190 New smear-positive patients converted to smear-negative at the end of 2 months and another 10 New smear-positive patients converted to smear-negative at the end of 3 months. Therefore, 200 (190 + 10) New smear-positive cases converted to smear-negative.

Divide 200 by the number of cases registered, i.e., 200 divided by 220 = 0.91. 0.91 multiplied by 100 = 91%. The conversion rate is 91%.

Record the results of sputum smear examinations

Check records of patients kept at the treatment centre

During your supervisory visit to a treatment centre, check the results of follow-up sputum smear examinations in the Tuberculosis Register. The Tuberculosis Treatment Card and the Laboratory Form for Sputum Examination are the forms you will usually use to obtain information about results of sputum smear examinations. Both these records should be kept at the PHI.

The Tuberculosis Register should be carried during supervisory visits.

Occasionally, both the Tuberculosis Treatment Card and the Laboratory Form for Sputum Examination are missing or incomplete. Information on results of sputum smear examinations is also in the Tuberculosis Laboratory Register. If the results of sputum smear examinations for a specific patient are not available at the treatment centre, work with laboratory personnel to obtain them from the Tuberculosis Laboratory Register.

When a patient has a sputum smear examination, a copy of the Laboratory Form for Sputum Examination with the **Results** section completed should be sent to the treatment centre by the designated microscopy centre. On the Laboratory Form for Sputum Examination, the **Results** of sputum smear examination(s) is written on the lower half of the form. Health workers at the treatment centre record the results in the patient's Tuberculosis Treatment Card in the 'smear results' column of the table provided on the right side.

Find the Tuberculosis Treatment Card (or the Laboratory Form for Sputum Examination) for each patient whose sputum smear examination results should be transferred to the Tuberculosis Register. Match the name and Tuberculosis Number on the Tuberculosis Treatment Card (or Laboratory Form for Sputum Examination) with the name and Tuberculosis Number on the Tuberculosis Register. The name of the patient and Tuberculosis Number are located at the top both in the Tuberculosis Treatment Card and the Laboratory Form for Sputum Examination.

Record results of sputum smear examinations done at the end of the intensive phase

Record the results of sputum smear examinations. If these results are **negative** at the end of the intensive phase, write **NEG** under the **Smear result** column, the Laboratory Number, Name of DMC and Date under the **respective** columns.

If the sputum results are **positive**, draw a forward slash (/) in the upper space in the **Smear result** column for end of IP (2 months). Then write the number associated with the positive results (3+, 2+, 1+, or scanty) above the forward slash. In the **Lab No., DMC, Date** columns draw a forward slash and make the respective entries for the end of IP above the slash.

The patient should, however, continue with the intensive phase of treatment for another month. The **Smear result, Lab No., name of DMC and Date** of the sputum smear tested at the end of extended IP (3 months) should be written in the appropriate columns below the slash you have drawn. For patients on Category II treatment, this procedure would be followed for month 3 (end of IP), and, if the smear is positive at month 3, the results should be written under the slash at month 4 (extended IP).

Record results of sputum smear examinations done two months into the continuation phase and at completion of treatment

If after the intensive phase or at completion of treatment, patients produce only saliva, the sample should still be sent to the laboratory to be examined. On the Laboratory Form for Sputum Examination, the code 'S' will be entered in the column 'appearance of sputum' in result section, Record the results of sputum smear examinations in the Tuberculosis Register in the appropriate columns. In most instances it will be negative.

Identify and record treatment outcomes

Accurate and complete information on the outcome of treatment for TB cases in your area will help you to monitor the progress of your district in achieving at least 85% cure rate. This information can indicate whether cases are being successfully treated, dying, defaulting, or leaving the district. It is your responsibility to ensure that the information on treatment outcome from a patient's Tuberculosis Treatment Card is recorded in the Tuberculosis Register.

Tuberculosis **Treatment Cards should reach the TB Unit** from the treatment centres as soon as the treatment outcome is recorded and within a maximum of one month time. Regularly review the Tuberculosis Treatment Cards to identify treatment outcomes of patients and verify them from the Tuberculosis Register. Sometimes, Tuberculosis Treatment Cards will not be sent. In case information is missing, it should be obtained during supervisory visits. This section of the module should prepare you to review a Tuberculosis Treatment Card to identify treatment outcome of a patient and record it in the Tuberculosis Register.

The Treatment Outcome should be recorded in the TB Register within one month of the completion of the treatment in case of cured and treatment completed cases. Similarly the outcomes of patients declared defaulted or died should be recorded within one month of the event.

There are six possible treatment outcomes listed at the right side bottom of the Register. However, transferred out is not considered as a 'favorable' treatment outcome. All possible efforts should be made until the outcome of patients transferred to another TB unit / district is available.

Every patient must have one and only one outcome for each registration.

Table 1: Definition of treatment outcomes	
Cured	Initially sputum smear-positive patient who has completed treatment and had negative sputum smears, on two occasions, one of which was at the end of treatment
Treatment completed	Sputum smear-positive patient who has completed treatment, with negative smears at the end of the intensive phase but none at the end of treatment. Or: Sputum smear-negative TB patient who has received a full course of treatment and has not become smear-positive during or at the end of treatment. Or: Extra-pulmonary TB patient who has received a full course of treatment and has not become smear-positive during or at the end of treatment.
Died	Patient who died during the course of treatment regardless of cause
Failure	Any TB patient who is smear- positive at 5 months or more after starting treatment. Also, a patient who was treated with CAT III but who became smear-positive during treatment.
Defaulted	A patient who has not taken anti-TB drugs for 2 months or more consecutively after starting treatment.
Transferred Out	A patient who has been transferred to another Tuberculosis Unit / District and his/her treatment result (outcome) is not known.

The information you need to determine a patient's treatment outcome is on the completed Tuberculosis Treatment Card. When you receive a completed Tuberculosis Treatment Card, first match the patient information on the card with the patient information in the Tuberculosis Register. Then, carefully review all the information on the Tuberculosis Treatment Card and decide the Treatment outcome of the patient. Review the front of the Tuberculosis Treatment Card. Determine if the patient was pulmonary smear-positive, pulmonary smear-negative or an extra-pulmonary tuberculosis case. Determine the Category of treatment regimen. Also, determine if he had his sputum smear examined when it should have been examined, and what the results of those examinations were.

Review the back of the Tuberculosis Treatment Card. See if the patient collected all his drugs at the correct times. Look at any remarks Medical Officers (MOs) or health workers might have written in the **Remarks** section.

Tuberculosis Treatment Cards should be reviewed as soon as possible after a patient has completed treatment.

When you find an incomplete Tuberculosis Treatment Card, you will need to find out what happened to the patient. You can plan to do this during a supervisory visit. For example, if you assess a Tuberculosis Treatment Card to be incomplete for the continuation phase and there are no comments in the **Remarks** section, you will need to find out if he died, was transferred out of the district, or just stopped coming and why. If the health worker does not know the reason, make sure he follows up on the patient.

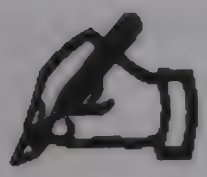
Data on cases that were transferred from one district to another should be evaluated in the district in which a patient was first notified and registered. At the end of the treatment of a patient who was transferred into the district, send the data on the patient (his Tuberculosis Treatment Card and any information from the Tuberculosis Register) back to the district in which the patient was first notified and registered. When patients are transferred within a district from one TU to another, information should be obtained and the patient's outcome reported from the TU in which the patient began treatment and was registered.

At the end of treatment of a patient who was transferred out of the district, you should receive the data on the patient from the DTO of the district where he completed his treatment. If you do not receive data on a patient who was transferred from your district to another within the state, request this information from the DTO of the district to which the patient was transferred.

POINTS TO REMEMBER

- Ensure correct treatment of smear-positive pulmonary TB patients by monitoring results of follow-up smear examinations for sputum smear conversion
- Ensure correct treatment of smear-negative and extra-pulmonary TB patients by monitoring drug intake
- Register all patients who are put on anti-TB treatment
- Each patient has only one of the six outcomes (cured, completed treatment, died, failure, defaulted or transferred out)
- While recording treatment outcome, write the exact date of last dose of drug consumption and not the last date when drugs were collected

- Registration means assigning a TB No. to a patient and monitoring the progress of the patient.
- The STS is responsible for registering patients
- All patients must be 'registered' within one month of treatment initiation
- Only one Tuberculosis Register is maintained at each TU
- All patients should be entered in the Tuberculosis Register and assigned a TB No.
- Tuberculosis Register contains all patient-related essential information



EXERCISE 4

Part 1

Using workbook E3 and the completed treatment cards in Exercise Workbook E2, complete the right hand side of the Tuberculosis Register.

Part 2

Look at the single page (right and left side) of Exercise Workbook E3 Labeled 'Tuberculosis Register with Errors'. Every line of the Tuberculosis Register contains at least one error in registration or in management. What are the errors?

TB. No.	Error (s)
401	
402	
403	
404	
405	
406	
407	
408	
409	
410	

EXERCISE 5

1. A patient started on Category I treatment on 12.4.03, treatment stopped on 30.7.03. The MPW reported that the patient expired on 30.12.03. Give the outcome of the patient.

2. What do you need to know to determine schedule for a follow-up sputum examination?

3. If the sputum smear result is positive at the end of the intensive phase of treatment, how will you record this in the TB register?

REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME

Tuberculosis Register

TB No	Date of Registration	Name (in full)	Sex M/F	Age	Complete address	Name of PHI	Date of starting treatment	Treatment category (I, II, III, ND1, ND2)	Disease class (P/EP)	Type of Patient	Pretreatment Sputum Examination			
											Date	DMC Name	Lab No	Smear

SUMMARY								
Regimen	New Smear-positive		Relapse		New Smear-negative		New Extra pulmonary	
	M	F	M	F	M	F	M	F
DOTS								
Non-DOTS								

*Type of Patient (use complete words)
New
Relapse
Transferred In
Failure
Treatment after Default
Others

REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME

Tuberculosis Register

Follow-up Sputum examinations												Treatment Outcomes		Remarks
End of I.P / Extended IP				2 months in CP				End of treatment						
Date	DMC Name	Lab No	Smear	Date	DMC Name	Lab No	Smear	Date	DMC Name	Lab No	Smear	Outcome	Date	

SUMMARY (DOTS cases only)						
Type of Patient	Cured	Treatment Completed	Died	Failure	Defaulted	Transferred out
New Smear Positive						
New Smear Negative						
New Extra-pulmonary						
Relapse						
Failure						
Treatment After Default						
Others treated with Cat - II						

***Treatment outcomes (use complete words)**

- **Cured**
- **Treatment completed**
- **Died**
- **Defaulted**
- **Failure**
- **Transferred out**

Module 6:

Recording and Reporting System for Monitoring RNTCP

MODULE 6: RECORDING AND REPORTING SYSTEM FOR MONITORING RNTCP

INTRODUCTION

Maintenance of accurate records and registers of patients and programme activities and reporting data to the state/central unit every quarter, is essential for proper monitoring and management of Revised National Tuberculosis Control Programme (RNTCP). The reporting is done through various periodic reports from different levels of the health system. Since supervisory personnel at all levels of the programme are required to have essential information on the various components of the programme, a decentralized approach to record-keeping and reporting has been adopted.

RNTCP records and reports are standardized and provide the required information for managing the programme effectively. Any change in RNTCP information system needs careful and serious consideration and should be done only by the Central TB Division. The Tuberculosis Register is one of the most important records and is maintained at the Tuberculosis Unit (TU). Every patient initiated on RNTCP treatment is registered in the TB Register. Using the information in the Tuberculosis Register, the Senior Tuberculosis Supervisor (STS), under the supervision of the Medical Officer-Tuberculosis Control (MO-TC), prepares Quarterly TU-level Reports. The MO-TC submits the report to the District Tuberculosis Officer (DTO), who, in turn, compiles the reports received from all Tuberculosis Units in the district and sends the District-level Reports to the State Tuberculosis Officer (STO) and the Central TB Division electronically. Computers with internet facilities have been provided at all District TB Centres in the country for electronic transmission of reports.

The quarterly reporting system used in RNTCP enables analysis of cohorts of patients. A cohort in this context is a group of patients who were registered for treatment in a specified area over a specified period of time. Under RNTCP, specified areas are TB Unit, district, state and country. The specified periods of time are four quarters of a year and one calendar year itself. A quarter is a three month period with the first quarter starting on 1st January of the year and one year is divided into four quarters (1st, 2nd, 3rd and 4th). This information helps national, state and district levels to assess the performance and monitor the implementation of the programme. Prompt and complete feedback to the peripheral levels is very important to ensure proper programme implementation.

The standardized records and reports prescribed under RNTCP are listed below.

Records

- Laboratory Form for Sputum Examination
- Referral form for treatment
- Referral register for treatment
- Treatment Card
- Identity Card
- Laboratory Register
- Tuberculosis Register
- Transfer Form
- Mycobacteriology Culture/Sensitivity Test Form
- PHI-level Supervisory Registers

Reports

At the state, district and TU -levels, following reports are used:

- Quarterly Report on New and Re-treatment Cases, i.e. Case Finding Report
- Quarterly Report on Sputum Conversion
- Quarterly Report on the Results of Treatment
- Reports on Programme Management and Logistics

At PHI-level, following report is used:

- Monthly Report on Programme Management, Logistics and Microscopy activities at Peripheral Health Institution level

In this module, detailed instructions for completing and analysing the Monthly/Quarterly Reports are given.

QUARTERLY REPORT ON CASE FINDING

In the Quarterly Report on Case Finding you record the number of tuberculosis cases diagnosed and registered under DOTS regimens CAT I, II and III during a quarter. This

information is compiled at the TB Unit level from the Tuberculosis Register. Reports from all TB Units within the district are collated at the district level. These collated district reports are then sent by the DTO simultaneously to the STO and the Central TB Division.

The TU-level Quarterly Reports should be completed and submitted within the first week after completion of each quarter. You should carefully review the schedule of reporting given in page 79 for guidance.

Refer now to the format for Quarterly Report on Case Finding on page 37.

The top portion of the form is for recording general information about the quarter reported and your area. Only cases treated under DOTS (CAT I, II and III) are included in this form. This form has three blocks.

Block 1 is subdivided into five columns:

1. New smear-positive pulmonary tuberculosis cases
2. Smear-positive relapses of pulmonary tuberculosis
3. New smear-negative pulmonary tuberculosis cases
4. New extra-pulmonary tuberculosis cases and
5. Total

Report only patients receiving RNTCP DOTS treatment

It is important to correctly identify smear-positive relapses from other retreatment cases. A TB patient who was declared cured or treatment completed by a physician, but who reports back to the health service and is now found to be sputum smear-positive is a relapse case. Retreatment cases, such as Failures, Treatment After Default and Others should not be included in Block 1 of the Quarterly Report on Case Finding.

Each of the first four columns in Block 1 is subdivided into two sections to record the sex-wise distribution of each type of case. Column (1) also has an additional column for the total number of new pulmonary smear-positive cases. Column (5) is subdivided into three sections to record the total number of male cases, total number of female cases and overall total number of cases, i.e., sum of smear-positive new cases, smear-positive relapses, smear-negative new cases and extra-pulmonary new cases of tuberculosis for the quarter. This format is shown below.

Complete the top portion of the form

Patients registered during _____ quarter of 200_____.

The year is divided into 4 quarters. Write the year and the quarter of the year for which you are reporting. For example, if you are reporting for the first quarter of 2003, write: Patients registered during **1st** quarter of **2003**.

The first quarter of a year (January, February and March) starts from 1st January and ends on 31st March. Within the first week of April, TU reports of first quarter should be completed and sent to District TB Officer for compilation of first quarter district report.

Similarly the quarterly TU level reports for the second and third quarters should be completed and sent to District TB Officer within the first week of July and October respectively. The date of submission of the fourth quarter TU level report to the District TB Officer for compilation of fourth quarter district report will be within the first week of January of the succeeding year.

Name of Reporter

Write the full name of the MO-TC/DTO in capital letters.

Date of Completion of this form

Write the day, month and year you are completing the report.

Signature

Give the complete signature.

Name of area

Write the name of the district/sub-district (TU).

Code Number

Each district/sub-district (TU) will have an identification number. Write the identification number for the district/sub-district (TU).

Complete Block 1

Refer to the Tuberculosis Register. At the bottom of each left-sided page of the Tuberculosis Register you will notice that there is a Summary box which will enable you to complete this block.

Count the number of Male New smear-positive pulmonary cases:

Look at the columns on the TB Register viz. Sex (M/F), Disease classification (P/EP), Type of Patient (New case, Relapse, Transfer in, Failure, Treatment After Default, Others), and Pre-treatment sputum results to identify smear-positive New cases, relapse, new smear-negative and new extra-pulmonary cases.

Pulmonary Tuberculosis							New Extra Pulmonary Tuberculosis (4)		Total (5)		
Smear-positive					New Smear-negative (3)						
New cases (1)			Relapses (2)								
M	F	Total	M	F	M	F	M	F	M	F	Total

The number of new smear-positive pulmonary cases should be closely monitored. New smear-positive pulmonary cases are highly infectious and, if inadequately treated, have a high fatality rate. If these patients receive proper and complete treatment under DOTS, they can have very high cure rates. In Block 2, data on only new smear-positive pulmonary cases are recorded by sex and age groups. The age groupings used in Block 2 are internationally recognized. When the report is completed, verify that the total in Block 2 corresponds to the total number of new smear-positive cases in Block 1.

Block 3 of this report is essential for calculating the total case detection rate and for monitoring drug consumption (but not for calculation of drug requirement). However, the total number of registered TB cases who are reported in Block 3 is unlikely to match the actual number of drugs consumed in the same quarter exactly. This is because although patients may have been started on treatment in the quarter, they may be registered and reported only in the next quarter, especially if their treatments were started in the last few days of the quarter.

You may note that certain cells of Block 3 of the Quarterly Report on Case Finding are shaded as no entries are expected in those cells. These cells are against patients who are smear-negative and hence cannot be labeled as Relapse, Failure or Treatment After Default cases.

Each and every patient who is registered for treatment under RNTCP DOTS in the reporting area must be accounted for in Block 3 of the Quarterly Report on Case Finding. In rare and exceptional situations, some patients who are not sputum smear-positive are treated with Category II (CAT II) regimen. These patients should be categorized as 'Others'. Patients who are 'transferred in' from other RNTCP areas,

however, should not be included in this block, as this would result in double-counting of cases for the purpose of case finding.

Locate the section of the Tuberculosis Register that corresponds to the three – month period (quarter) which you are to review.

To locate the section of the Tuberculosis Register to be reviewed, examine the **Date of registration** column and identify the pages where cases during the just concluded quarter have been **registered**. For example, while compiling the case finding report of 2nd quarter in the first week of July, only count those cases who were registered in the period between 1st April and 30th June. It is best to start the registration of cases on a new page in the Tuberculosis Register at the beginning of each quarter.

Remember: The reference date for inclusion of a patient in a quarterly cohort is the date of registration in the TB register and not the date of initiation of treatment.

a. Enter the total number of such cases (in pencil) in the summary table at the bottom of each left sided page of the Tuberculosis Register.

b. The above exercise should be continued in all the pages of the TB register covering all cases registered in that quarter. Re-count the cases to make sure that the numbers obtained are correct.

c. Add the number of male New smear-positive pulmonary cases from the summary table on each left sided page of the TB register you have reviewed.

d. Enter the aggregate number of male New smear-positive pulmonary cases in column 1 of Block 1 in the Quarterly Report on Case Finding.

Count the number of female New smear-positive pulmonary cases. To count the number of female New smear-positive pulmonary cases, complete the same process as described above for the male New smear-positive pulmonary cases with the exception that in the column Sex in the TB Register look for “F”. Enter the number you obtain for the total number of female New smear-positive pulmonary cases under the heading “F” (female) in column 1 of Block 1 on the Quarterly Report on Case Finding.

Determine the total number of New smear-positive pulmonary tuberculosis cases. Add the number of male and female New smear-positive pulmonary cases and enter the total number under the heading Total in column 1 of Block1.

Similarly the total number of cases under Relapse, New smear-negative cases and New Extra-Pulmonary cases should also be entered in the relevant columns of Block 1.

Complete Block 2

Using the worksheet provided on page 36 complete Block 2 of the Quarterly Report form. Only New smear-positive pulmonary tuberculosis cases entered in column 1 of Block 1 should be included in Block 2. The number of new smear-positive males, females and total should match with those in column 1 of Block1.

Complete Block 3

Using the worksheet provided on page 38 complete Block 3 of the Quarterly Report form. This block is necessary to determine the total case detection and to monitor drug utilization. This block is also used to determine patients belonging to the paediatric age group. Every patient started on treatment and registered (except those typed as "transfer in") must be included in the Total column for Block 3 of the Quarterly Report form. Note that certain boxes in this Block are shaded out. This is because if patients are correctly categorized, there will be none indicated in these boxes. For example, there should never be a patient who fits into the definition of Relapses, Failures or Treatment After Default receiving Category I (CAT I) or Category III (CAT III) treatment. Only smear-positive patients fit into the definitions of Relapses, Failures and Treatment After Default. In very rare circumstances, such patients with extra-pulmonary or smear-negative tuberculosis and receiving Cat II regimen might otherwise fit into one of these three definitions. However, all such cases should be classified as 'Others' and entered in Block 3. If there is a patient in the Tuberculosis Register who falls in one of these shaded boxes, review and correct the patient's information.

- **All patients (except "transfer in") started on treatment must be included in Block 3.**
- **Failure, Treatment after Default and 'Others' cases are not entered in Block 1. They are only entered in Block 3.**

EXERCISE 1

Using the five pages of the Tuberculosis Register in Exercise Workbook 3, complete all the three Blocks of the Quarterly Report on Case Finding on page 37. Use the information from the summary table at the bottom of the Tuberculosis Register pages for completing Block 1, and the worksheets provided on pages 36 and 38 respectively for completing Block 2 and Block 3.

WORKSHEET

Quarterly Report on Case Finding

Review every page of the TB Register for the quarter being reported on. Put a tally mark*(/) on the appropriate column below and give the totals in the space provided. Include only patients who are New sputum smear – positive pulmonary cases (Category I, Sputum- positive)

Age (Years)	Male (Tally Here)	Male Total	Female (Tally Here)	Female Total
0-14				
15-24				
25-34				
35-44				
45-54				
55-64				
65 and above				
Total				

*One tally mark (/) is put for each case. Four tally marks are placed successively (////). However when a fifth case is recorded the four tally marks already put in are crossed (////). In this way each such group represents five cases. This method of tally marking facilitates counting.

REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME
Quarterly Report on New and Retreatment Cases of Tuberculosis

Patients registered during ____ quarter of 200__.		Name of area _____. No.#

Name of Reporter:_____.

Signature : _____

Date of completion of this form

Block 1 : All new and relapse patients registered in the quarter

Pulmonary tuberculosis							New extra-pulmonary tuberculosis (4)		Total (5)		
Smear-positive					New smear-negative (3)						
New cases (1)			Relapses (2)								
M	F	Total	M	F	M	F	M	F	M	F	Total

Block 2 Smear – positive new cases only : from Column (1) above

Age – group (years)														Total		
0 –14		15 –24		25 – 34		35 – 44		45 – 54		55 – 64		65 and above				
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total

Block 3 : Treatment regimen given

Type of patient	Category I				Category II				Category III				Total
	Smear-positive		Smear-negative/ extra-pulmonary		Smear-positive		Smear-negative/ extra-pulmonary		Smear-negative		Extra-pulmonary		
	0-14	Above 14	0-14	Above 14	0-14	Above 14	0-14	Above 14	0-14	Above 14	0-14	Above 14	
New													
Relapses													
Failures													
Treatment after default													
Others													
Total													

Notes: Quarterly: 1st quarter January, February, March
2nd quarter April, May, June
3rd quarter July, August, September
4th quarter October, November, December

Number identification number of the area.

Exercise 2

WORKSHEET for preparing

Quarterly Report on Case Finding

Block 3: All patients started on treatment except 'transferred in' are included.

Review every page of the TB Register for quarter being reported on. Put a tally mark *(/) on the appropriate column below. And give the totals in the space provided. Every patient started on treatment (except transferred in) must be entered in this report.

Block 3: Treatment regimen given

Type of patient	Category I				Category II				Category III				Total
	Smear-positive		Smear-negative/ extra-pulmonary		Smear-positive		Smear-negative/ extra-pulmonary		Smear-negative		Extra-pulmonary		
	0-14	Above 14	0-14	Above 14	0-14	Above 14	0-14	Above 14	0-14	Above 14	0-14	Above 14	
New													
Relapses													
Failures													
Treatment after default													
Others													
Total													

* One tally mark (/) is put each case. Four tally marks are placed successively (////). However when a fifth case is recorded the four tally marks already put in are crossed (~~////~~). In this way each such group represents five cases. This method of tally marking facilitates counting.

Table 1 A: Calculating Programme Indicators from Quarterly Report on Case Finding

Indicator	Description	Calculation
Case-detection		
Proportion of smear-positive cases out of new pulmonary TB Cases	There should ideally be 50% smear-positive cases out of the total new pulmonary TB cases. This proportion however should not be less than 45%	**Numerator:** The number of New smear-positive cases registered in a quarter. **Denominator:** The number of New pulmonary TB cases registered in the same quarter (NSP+NSN).
Case Notification rate for New smear-positive cases.	The Case Notification rate of New smear-positive cases is the number of new smear-positive cases registered for treatment per 100 000 population. The Case Notification rate is important for observing trends in case notification over the years. This is usually calculated once a year. This could be calculated for various age groups and by sex. In India, the estimated incidence of cases used in programme planning is 75 New smear-positive cases per lakh per year.	**Numerator:** The number of New smear-positive cases registered in a year in a defined area (district or state). (If calculated quarterly, annualize it by a multiplier of 4.) **Denominator:** The estimated total mid-year population of the area (district, state or country).

To convert the case notification rate into percentage, this rate will have to be divided by the expected annualized case notification rate for the year of the reporting unit (This expected annualized case notification rate may vary from region to region based on Regional ARTI)

$$\text{Annualized case detection rate (\%)} = \frac{\text{Annualized Case notification rate/Lakh/Year}}{\text{Expected Annualized Case notification rate of the reporting unit/Lakh/Year}} \times 100$$

Analysing the quarterly report on case finding

Evaluate the Quarterly Report on New and Retreatment Cases of Tuberculosis for consistency and completeness. For example, the numbers in Block 1, Column 1 for smear-positive New cases should be the same as the numbers in the Total column of Block 2.

50% of new pulmonary cases should be smear-positive.

Analyse the data on New cases and Relapses separately. To analyse the data on New cases, compare the data for one quarter (or half a year or a whole year) with the data for the same period for the previous year. When you compare data, look for inconsistencies and unexpected increases (or decreases) in the number of New cases registered. When you analyse data on Relapses, also look for inconsistencies and unexpectedly high or low numbers of cases of Relapses. Similarly other indicators regarding Case Finding should be analysed (Table1B).

When there are variations from what is expected, try to assess the reasons for these variations. Some possible ways to investigate the reasons are listed below:

1. Discuss with the MO of the district and the supervisors of the health units to see if there is a good explanation for the results. If there were more smear-negative cases than expected, there may be over-reliance on X-rays, or poor quality of sputum smear examination by microscopy staff, or there may be a recent increase in the number of cases of HIV infection in the district. With an increase in the number of cases of HIV infection, both smear-positive and smear-negative cases would increase.

2. Review the Tuberculosis Register for patient classification or errors in counting.

3. Discuss with MOs and health workers and their supervisors to find out how they assess tuberculosis suspects. Also discuss how they administer treatment and provide health education.

Table 1B: Case Finding Indicators and possible responses to problems

Quarterly Report Indicator		Possible Actions
Case Finding		
Expected: New smear-positive cases: ≥ 70%	Annualized Registered No. of New smear-positive cases is less than 50%	Ensure that every TB suspect in all peripheral health facilities undergo sputum smear examination (in at least 2% of new adult outpatients). Ensure that three sputum smear examinations are done for all TB suspect. Ensure that sputum smear microscopy is done correctly (5%–15% positivity is expected among patients examined for diagnosis). Intensify review of slides read as smear-negative, particularly those of patients placed on treatment. Ensure that all smear-positives in the Laboratory Register are started on treatment and registered in the Tuberculosis Register. Ensure that sputum smear microscopy is accessible to patients, and the laboratory technician is trained.
	Annualized Registered No. of New smear-positive cases is more than 100%	Ensure that no active case-finding is carried out in any area. Ensure that sputum smear microscopy is accurate. Ensure review of slides of smear-positive patients. Ensure that only patients who reside in the area are started on treatment, and non-resident patients are referred for treatment to health facilities in the area that they reside in.
Expected: Re-treatment smear-positive cases are about 30% of all smear-positive cases in initial years of RNTCP implementation	Re-treatment cases are less than 20%of all smear-positive cases	Ensure that accurate history taking is done at all levels. Patients must be asked carefully about any prior treatment taken for tuberculosis from any source. It should be explained to patients that only if they provide accurate information can the most effective treatment be given. Make sure that definitions are applied correctly. Any smear-positive patient treated in the past for more than one month and has defaulted for more than two months, should receive the re-treatment (CAT II) regimen.

	Re-treatment cases are more than 40% of all smear-positive cases	Ensure that active case-finding is not resorted to. With active case-finding, many 'old' TB cases are reported. Ensure that history-taking is accurate and definitions are correctly applied. Ensure that new symptomatic patients undergo three sputum smear examinations for acid-fast bacilli (AFB).
Expected: 50% of all New pulmonary cases will be smear-positive	Among New pulmonary cases, proportion of smear-positive is less than 45%	Ensure that over-diagnosis of sputum smear-negative patients is not happening due to over reliance on radiography. No patient should begin treatment without the mandatory three sputum smear examinations. Ensure that three sputum smears are examined for all TB suspect. Ensure that repeat sputum smear examinations are done for patients who continue to have symptoms after a course of antibiotics. Ensure that sputum smear microscopy is done correctly. Review slides of smear-negative patients placed on treatment.
Expected: Not more than 20% of smear-negative and extra-pulmonary patients are considered seriously ill and placed under CAT I	The proportion of smear-negative or extra-pulmonary seriously ill patients given CAT I regimen is more than 25%	Ensure that only seriously ill patients are given CAT I treatment. Non-seriously ill New smear-negative patients should receive CAT III treatment. Ensure that sputum microscopy is done correctly. Arrange review of slides of smear-negative patients placed on treatment.

QUARTERLY REPORT ON SPUTUM CONVERSION

Quarterly Report on Sputum Conversion of Sputum Smear-positive Tuberculosis Patients (New, Relapse, Failure, Treatment After Default) Registered 4-6 Months Earlier

Sputum Conversion rate at the end of the intensive phase is a critical early indicator of the effectiveness of programme implementation. If smear-positive patients take quality medicines under direct observation in the intensive phase of treatment, sputum of nearly all patients will convert to negative within three months. Sputum smear-

positive patients whose smear grade was 3+ or 2+ at the time of diagnosis generally have slower sputum conversion, but equally high cure rates.

Sputum examination at the end of the intensive phase is important because:

- Sputum conversion is an early and sensitive indicator of the quality of programme implementation. A low conversion rate indicates need for intensive supervision.
- Patients whose sputum smears are still found to be positive will receive another month of intensive phase of treatment, thereby improving their chances for cure; Documentation that patients are converting from smear-positive to smear-negative give patients and health workers confidence in RNTCP.

The quarterly report on sputum conversion should be compiled by reviewing the patients under RNTCP DOTS, who were registered in TB Register 4-6 months earlier. For example if the quarterly reports are being prepared on 7th October 2004, the sputum conversion report should include the sputum smear-positive patients registered in 2nd Quarter 2004 (April to June 2004). These are the patients who were included in the Quarterly Report on Case Finding of 2nd Quarter 2004.

Calculation of sputum conversion rate involves the following steps. The number of smear-positive patients put on treatment under DOTS in each Category is obtained from the Quarterly Report on Case Finding for the corresponding quarter. All patients started on treatment are included in the denominator, even if they have died, defaulted, transferred out, or not had their sputum collected for examination. For calculating the sputum conversion rate, the number of smear-positive patients who had their sputum converted to smear-negative at the end of intensive phase is divided by the number of smear-positive patients started on treatment, and the ratio is multiplied by 100 for obtaining percentage.

$$\text{Sputum conversion rate} = \frac{\text{No. of sputum smear-positive converted to sputum smear-negative at the end of intensive phase*}}{\text{Total No. Sputum smear-positive patients initiated on treatment}} \times 100$$

*For calculating sputum conversion rate for new sputum smear-positive patients only, all those who converted at the end of IP (at the end of two months) and at the end of extended IP (at the end of three months) should be added to obtain the numerator. This is not applicable for the rest of sputum smear-positive patients.

For new sputum smear-positive patients sputum conversion is reported at the end intensive phase (at the end two months of IP). For those new sputum smear-positive patients who remain smear-positive at the end two months of IP, sputum conversion is again reported at the end of extended intensive phase (at the end of three months of

IP). For other types of sputum positive cases (treated with Cat II), sputum conversion is only reported at the end of the Intensive Phase (at the end of three months of IP). The sputum results at the end of the extended intensive phase (at the end of four months of IP) are not evaluated in the Quarterly report on Sputum Conversion. This is because collection of this information would delay sputum conversion reporting by one quarter without adding significant information.

The sputum conversion rate is not only an indicator of the efficacy of the treatment regimen, but also of the effectiveness of programme implementation. For patients, who died, defaulted, were transferred out or from whom sputum was not collected, sputum conversion cannot be documented. Although sputum conversion rates are determined for all different types of smear-positive patients, the most important evaluation is that of new sputum smear-positive patients.

At least 90% of new smear-positive patients put on CAT I regimen should convert to smear-negative within 3 months of treatment. It may be noted that for the compilation of the **Quarterly Report on sputum conversion**, the total number of smear-positive patients of various types (new smear-positive, relapse, failure and treatment after default) registered for treatment in the preceding quarter are followed up and hence these numbers should tally with those reported in the Case Finding report of the previous quarter.

EXERCISE 3

In one district, the number of New smear-positive patients started on CAT I treatment was 88. After two months of IP, 61 patients converted to smear-negative, 4 remained smear-positive, and 23 did not have their sputum smear examination done. After the extended IP, the 4 cases, which remained, smear-positive had their sputum examined and all had converted to smear-negative.

1. What is the sputum conversion rate at the end of IP (2 months)?

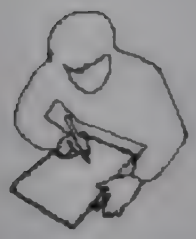
2. What is the sputum conversion rate at the end of the extended IP (3 months) ?

3. How many patients did not have sputum smear examinations done at the end of IP and extended IP, and what are the possible reasons for this?

Use the format given below:

Total Number of new sputum positive patients	Sputum at the end of IP			Sputum at the end of extended IP		
	Negative	Positive	N.A*	Negative	Positive	N.A*

*Not available (Sputum examination was not done).



EXERCISE 4

Complete the Quarterly Report on Sputum Conversion on the next page using the five pages in the Tuberculosis Register in Exercise Workbook E3. Use the worksheet provided below.

Revised National Tuberculosis Control Programme

WORKSHEET

Quarterly Report on Sputum Conversion

Review every page of the TB Register for the quarter being reported on. Make sure that all available sputum results have been entered into the register. Put a tally mark*(/) on the appropriate column below and give the totals in the reporting format provided. **Every sputum Positive new, relapse, failure and treatment after default cases started on treatment must be entered in this report.** Only pulmonary sputum positive tuberculosis cases are included in this report.

Total number of new sputum positive patients	Sputum at the end of IP			Sputum at the end of extended IP		
	Negative	Positive	N.A. *	Negative	Positive	N.A.*

Total number of smear-positive Relapse cases	Sputum at the end of IP		
	Negative	Positive	N.A. *

Total number of smear-positive Failure cases	Sputum at the end of IP		
	Negative	Positive	N.A. *

Total number of smear-positive Treatment After Default cases	Sputum at the end of IP		
	Negative	Positive	N.A. *

*Not available (Sputum examination was not done).

**One tally mark (/) is put for every case. Four tally marks are placed successively (////). When the fifth case is recorded, the four tally marks already put in are crossed (////). In this way each such group represents five cases. This method of tally marking facilitates counting.

REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME
Quarterly Report of Sputum Conversion of New and Retreatment cases Registered 4-6 Months Earlier

Patients Registered during _____ quarter of 200 ___.

Name of area: _____.
No. _____

Name of reporter: _____

Signature:_____

Date of completion of this form:

Complete this proforma for sputum smear-positive patients. The total no should be the same as in the Quarterly Report on New and Retreatment Cases of Tuberculosis.

Total number of new sputum positive patients	Sputum at the end of IP			Sputum at the end of extended IP		
	Negative	Positive	N.A. *	Negative	Positive	N.A.*

Total number of smear-positive Relapse patients	Sputum at the end of IP (3 months)		
	Negative	Positive	N.A. *

Total number of smear-positive Failure patients	Sputum at the end of IP (3 months)		
	Negative	Positive	N.A. *

Total number of smear-positive Treatment After Default patients	Sputum at the end of IP (3 months)		
	Negative	Positive	N.A. *

N.A.: Not available. Sputum Examination was not done.

Analysing quarterly report on sputum conversion

Please ensure that number of sputum positive patients (various types) reported in sputum conversion report matches with the number reported in the case finding report for the same quarterly cohort

There could be several reasons for the sputum conversion rate to be low. A list of possible problems and the responses needed is given below:

Table 2: Sputum Conversion Indicators and possible responses to problems

Quarterly Report	Indicator	Possible Actions
Conversion		
Expected: Conversion rate is more than 90% of New smear-positive patients at 3 months	Less than 85% of New smear-positive patients are documented to become sputum smear-negative at 3 months	Ensure that Medical Officers, treatment supervisors, and all other staff involved in the programme at peripheral centres understand the importance of follow-up sputum examinations. Follow-up sputum examinations are the best measure of patient response to treatment. Conversion of sputum at the end of IP increases patient confidence and is critical to programme evaluation. Visit all centres with low sputum conversion rate and resolve any problem with the help of the staff. Make sure default rates in the first two months are <5%, and the number of patients who die or transferred out are minimised. Ensure that accurate history-taking takes place at all levels. Patients must be asked carefully about any prior treatment for tuberculosis from any source. It should be explained to patients that only if they provide accurate information can the most effective treatment be given. If previously treated patients are not placed on the retreatment regimen, they may not respond well to treatment. Make sure that definitions are applied correctly. Any smear-positive patient treated for more than one month in the past and with a default of more than two months, should receive the retreatment (CAT II) regimen. Ensure that sputum microscopy is accurate. Ensure review of slides of patients who remained smear positive at the end of the intensive phase. Ensure that every dose of medication is observed during the intensive phase of treatment. Observation sites should be convenient to the patient. The quality of DOTS should be checked at the time of supervision, including checking of entries in the Treatment Cards with the drugs available in patient-wise boxes.

QUARTERLY REPORT ON THE RESULTS OF TREATMENT

Quarterly Report on the Results of Treatment of Tuberculosis Patients Registered 13–15 Months Earlier

The primary goal of RNTCP is to detect and cure patients with tuberculosis, especially smear-positive tuberculosis patients. The goal of at least 85% cure rate for new smear-positive cases is operationally feasible.

The cure rate achieved for new pulmonary smear-positive cases registered in the Tuberculosis Register under DOTS is a useful criteria to evaluate the effectiveness of chemotherapy in treating tuberculosis cases. Another way to evaluate the programme is to examine other possible Results of Treatment in new smear-positive cases and calculate the percentage of cases died, were treatment failures, defaulted, or were transferred to other districts. The cure rate for new pulmonary smear-positive cases is the most important indicator of the success of the programme.

Think of the patients you register in a quarter as a group of individuals who start out together in a 10 kilometer foot race. At the end of the race, the judges count how many people in the group completed the race within a certain time period, how many people completed the race at all, and how many people did not complete the race. In a similar way at the end of treatment, you should count how many of the new smear-positive cases you registered in a specific quarter were cured, completed treatment, died, treatment failures, defaulted or were transferred out.

The smear-positive re-treatment cases are also evaluated in a similar manner. Smear-negative pulmonary cases are evaluated separately. Successfully treated smear-negative cases are classified as 'Treatment completed'.

You should use the findings of reports on treatment results to help you in supervising health workers and monitoring of the programme. Sharing the reports on the results of treatment with health workers can help them understand how their efforts have improved the cure rate. If the cure rate of 85% has been achieved, it will make them proud of the work they have done and hence, motivate them to maintain it. However, cure rates should not be calculated for health facilities within TB Units, i.e., Peripheral Health Institutions, using quarterly data. This is because the number of cases may be too low to give correct information.

At the beginning of each quarter, complete the Quarterly Report on the Results of Treatment of Tuberculosis Patients Registered 13–15 Months earlier (hereafter referred to as Quarterly Report on Results of Treatment). It summarizes the Results of Treatment of patients under DOTS who were registered in the Tuberculosis Register 13–15 months earlier. It is the most important report in the routine reporting system of tuberculosis cases and their outcomes.

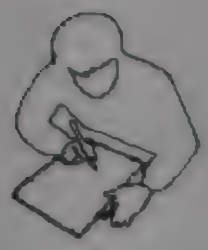
This section of the module helps you in knowing how to complete this report. You will learn how to obtain the information from the Tuberculosis Register, how to summarize the data and how to enter the data into the appropriate columns of the report. You will also learn how to cross-check the number of cases on this form with data reported earlier in the Quarterly Report on Case Finding.

Report outcome in the quarterly report for patients receiving RNTCP DOTS regimens only

Determine the quarter on which to report

To compile the Quarterly Report on the Results of Treatment, you will need to review the Quarterly Report on Case Finding you compiled for patients registered 13 to 15 months earlier. You will also need to review the Tuberculosis Register for the same period. For example, if you are compiling the Quarterly Report at the beginning of the 3rd quarter of 2004 (ie. the first week of July), go back to the records of the Tuberculosis Register 13 to 15 months earlier. Thus you will be reviewing the patients registered from 1 April 2003 to 30 June 2003, in the Tuberculosis Register of the TU

Another way to quickly determine the quarter you need to report on is to go back one year from the quarter that just ended. For example in January, you will compile the report for cases registered during the fourth quarter an **entire year earlier** (not the fourth quarter that just ended). Similarly in April 2004, you will be compiling the report for cases registered during the first quarter a year earlier, i.e. from January to March 2003. Once you know the quarter for which you are reporting, look at the dates in the column **Date of registration** in the Tuberculosis Register to find the cases registered during that quarter. Look for the cases registered during the months of the quarter for which you are reporting.



EXERCISE 5

Next to the dates given below for the first week of a new quarter, write the months you would report on in the Quarterly Report on Results of Treatment.

Date of reporting	Report on patients registered in the months of
1 April 2004	
1 July 2004	
1 October 2004	
1 January 2005	
1 April 2005	

Complete the top portion of the Quarterly Report on the Results of Treatment on page 60 as per the following:

Name of area: Write the name of the sub-district/district.

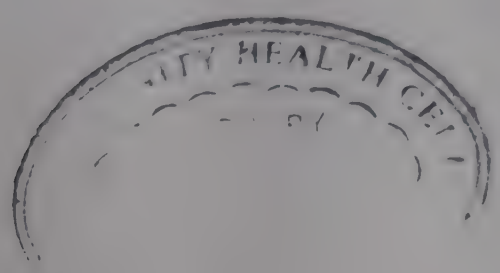
No: *Write the identification number for the sub-district/district.*

Date of completion of this form: Write the day, month and year you are completing the Quarterly Report.

Patients Registered during the quarter of 20....: *Write the quarter and the year corresponding to 13 to 15 months earlier.*

Name of Reporter: Write full name of the reporting Medical Officer.

Signature: Give the complete signature.



EXERCISE 6

Using the worksheets on the following pages, complete the Quarterly Report on the Results of Treatment for the five pages of the Tuberculosis Register in Exercise Workbook E3. The Quarterly Report on the Results of Treatment follows the worksheets

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

New smear-positive pulmonary Cases

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (////). Such a group represents five cases. This method of tally marking facilitates counting.

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

New smear-negative pulmonary Cases

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (~~////~~). Such a group represents five cases. This method of tally marking facilitates counting.

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

New Cases Extra Pulmonary

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (~~////~~). Such a group represents five cases. This method of tally marking facilitates counting.

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

Pulmonary smear-positive relapse cases

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (~~////~~). Such a group represents five cases. This method of tally marking facilitates counting.

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

Pulmonary smear-positive failure cases

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (~~////~~). Such a group represents five cases. This method of tally marking facilitates counting.

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

Smear-positive treatment after default cases

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (////). Such a group represents five cases. This method of tally marking facilitates counting.

WORKSHEET

Quarterly Report on the Results of Treatment of patients Registered 13 –15 months earlier.

'Others' treated with Category II

Review every page of the TB Register for the quarter being reported upon. Make sure that all available sputum results and outcomes have been entered into the register. Put a tally mark*(/) in the appropriate column below.

Page of Register	Cured		Treatment completed		Died		Failure		Defaulted		Transferred out		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														

*One tally mark (/) is put for every case. Four tally marks are placed successively (////). When a fifth case is to be recorded the four tally marks already put in are crossed (~~////~~). Such a group represents five cases. This method of tally marking facilitates counting.

REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME

Quarterly Report on the Results of Treatment of Tuberculosis Patients Registered 13-15 Months Earlier

Name of area: _____. No : _____. Date of completion of this form _____	Patients registered during _____ quarter of_____ .	Name of Reporter* : _____. Signature :

Patient reported during quarter **	Type of Patient	Cured (1)	Treatment completed (2)	Died (3)	Failure (4)	Defaulted (5)	Transferred to another district (6)	Total number evaluated (sum of columns 1 to 6)
Male / Female / Total	NEW CASES	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total
	Smear-positive							
	Smear-negative							
	Extra-pulmonary							
	Total New cases							
Male / Female / Total	RETREATMENT CASES	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total	Male / Female / Total
	Smear-positive relapses							
	Smear-positive failures							
	Smear-positive treatment after default							
	Others treated with Category II							
	Total Category II							

* The Reporter is the Medical Officer responsible not the person completing this form. This form includes patients on category I, category II and category III treatment both smear-positive and smear-negative These totals should match those of the Quarterly Report on New & Retreatment cases for the quarter.

** Of these, _____ (number) were excluded from evaluation of chemotherapy for the following reasons.

Review the following example of calculating the rates of Results of Treatment.

EXAMPLE:

In the first quarter of 2003 in one district, 134 New smear-positive patients were started on treatment. At the beginning of the second quarter of 2004 (ie. 1st April 2004), the DTO reviewed the Tuberculosis Registers from the four Tuberculosis Units in the district. With the help of the Senior Tuberculosis Supervisors, the Senior Tuberculosis Laboratory Supervisors, and the designated Medical Officers of the Tuberculosis Units (MO-TC), he ensured that all information in the Tuberculosis Registers were complete and accurate for every patient registered in the first quarter of 2003. He confirmed that the Quarterly Report on Case Finding sent one year earlier for this quarter, reported 134 New smear-positive patients. Using the worksheets, he tallied the results and found the distribution of Results of Treatment as under.

Patients registered during quarter	Type of patient	Cured (1)	Treatment completed (2)	Died (3)	Failed (4)	Defaulted (5)	Transferred to another district (6)	Total number of patients evaluated (sum of columns 1-6)
134	New smear-positive	*110*	*4*	*4*	*2*	*9*	*5*	*134*

The various rates of outcome were calculated as under:

Cure rate	:	(110 ÷ 134)	x	100	=	82%
Completion rate	:	(4 ÷ 134)	x	100	=	3%
Success Rate*	:	(110+4 ÷ 134)	x	100	=	85%
Death rate	:	(4 ÷ 134)	x	100	=	3%
Failure rate	:	(2 ÷ 134)	x	100	=	1%
Default rate	:	(9 ÷ 134)	x	100	=	7%
Transfer rate	:	(5 ÷ 134)	x	100	=	4%

* For the purpose of programme evaluation, the success rate can be determined by adding the cure and completion rates among New smear-positive cases. However, the component of cases completing treatment should be a small percentage of the total number.

In this example, the DTO could improve the results to meet the objective of 85% cure rate by:

- ensuring that every patient who completed treatment had two sputum smear examinations done in the course of treatment, including one at the end of treatment
- reducing the default rate
- ensuring that the results of treatment are obtained for the 'transferred out' cases
- a combination of these four interventions.

Note that the outcome must be reported for each and every patient who is registered.

Analysing quaterly report on result of treatment

If 85% cure rates were not achieved, analyse the reasons for this. Intense supervisory visits (at least once a month) are mandatory to this area.

Ways to investigate the reasons for low cure rate include:

- Discuss with health workers and their supervisors on the practice of administering treatment and providing health education. Make sure that health workers directly observe drug intake by patients, especially in the intensive phase. During the continuation phase the first dose of every week should be directly observed and the empty blister pack checked for the remaining doses before giving medicines for the next week.
- Interact with patients to make sure that they understand their treatment regimens and that they are receiving directly observed treatment. In addition, confirm whether they have been categorized properly based on past history of anti-TB treatment.
- Review the Tuberculosis Register for errors in tallying or classifying patients.
- Discuss with the District Medical Officer, Medical officer in-charge of health facilities and MOs whether there is a valid reason for the low cure rate.

The table on the following page summarizes **some** possible causes of high rates of deaths, failures, defaulters and transferred out cases leading to poor cure rates. Remember this is only illustrative and not an exhaustive list.

Table 3: Result of Treatment Indicators and possible solution to problems

Quarterly Report	Indicator	Possible Actions
Treatment outcome		
Expected: Cure rate for New smear-positive cases is 85% or more	Cure rate of New smear-positive patients is less than 80%	Visit centres with low cure rates to discuss with patients and staff the reasons for low cure rate and possible solutions. Ensure that accurate history-taking takes place at all levels. Patients must be asked carefully about any prior treatment for tuberculosis taken from any source. It should be explained to patients that only if they provide accurate information can the most effective treatment be given. If previously treated patients are not given the retreatment regimen, they may not respond well to treatment. Make sure that definitions are applied correctly. Any smear-positive patient treated for more than one month in the past, with default of more than two months, should receive the retreatment (CAT II) regimen. Ensure that every dose of medication is observed during the intensive phase of treatment, and at least one dose per week in the continuation phase. Ensure return of empty blister packs during weekly collection of drugs. Observation sites should be convenient for the patient. Ensure that health workers are administering medications properly as per technical guidelines. Ensure that follow-up sputum smear examinations are done according to guidelines.
	Cure rate of New smear-positive CAT I patients is more than 95%.	Check for the accuracy of the report. Make sure that Result of Treatments are correctly recorded and reported. All diagnosed smear-positive patients started on treatment should be registered.

Quarterly Report	Indicator	Possible Actions
Expected: Not more than 3% of New smear-positive patients are given the outcome as Treatment completed.	Per cent of New smear-Positive patients who are classified as having treatment completed is more than 5%	Ensure that follow-up sputum examinations are done as per policy. Carefully track these at all treatment units. Sensitise the Medical Officers and other health staff about the importance of follow-up sputum examinations. Locate patients who have recently completed treatment and obtain sputum samples for examination. Carefully review the patient data for accuracy and to ensure that treatment is being given under direct observation as per policy.
Expected: Not more than 4% of New smear-positive patients die during treatment	Per cent of New smear-positive patients who die during treatment is more than 5%	Ensure that every dose of medication is observed during the intensive phase of treatment, and at least one dose per week in the continuation phase. Observation sites should be convenient to the patient. Review information on patients who died to determine the reasons. If patients are presenting for treatment when already moribund, consider ways and means to encourage more prompt referral and diagnosis so that patients can be treated earlier in the course of their TB illness. In spite of all the above if the death rate is still more than 5%, consider evaluation of the prevalence of HIV infection among TB patients, to be done strictly as per policy with safeguards of confidentiality.
Expected: Failure: Not more than 4% of New smear-positive patients continue to be smear-positive at 5months or later from the start of treatment	Per cent of New smear-positive patients who fail treatment is more than 5%	Ensure that accurate history-taking is done at all levels. Patients must be asked carefully about prior treatment for tuberculosis from any source. It should be explained to patients that only if they provide accurate information can the most effective treatment be given. If previously treated patients are not given the retreatment regimen, they may not respond well to treatment. Make sure that definitions are applied correctly. Any smear-positive patient treated for more than one month in the past, with default of more than two months, should receive the retreatment (CAT II) regimen. Ensure that every dose of medication is observed during the intensive phase of treatment and at least one dose per week in the continuation phase. Ensure return of empty blister packs during weekly collection of drugs in the continuation phase. Observation sites should be convenient to the patient. Ensure that health workers are dispensing medication properly as per technical guidelines.

		Ensure that drugs are of acceptable quality, stored in appropriate conditions and are used before the expiry period. In spite of all the above if the failure rate remains higher than 5%, consider evaluation of the level of primary drug resistance in the community.
Quarterly Report	**Indicator**	**Possible Actions**
Expected Default rate is less than 5%	Default rate of smear-positive CAT I patients is more than 8%	Visit centres which have reported the highest default rates and interview staff and patients to determine the efforts made to retrieve patients, the reasons for default and possible solutions. Make sure that centres are aware of their default rate so that they can take steps to reduce it. Ensure that patient history is carefully ascertained, including the address. A visit to patients' home should be made to verify address and landmarks near the house should be recorded in the Treatment Card. Services should be convenient to the patient in terms of distance, time and staff attitudes. During the visit to the house for verification of address, note the name and address of a person who can be contacted in the event the patient defaults. Ensure that directly observed treatment is given to patients in the intensive phase and at least one dose per week is directly observed during the continuation phase.
Expected: Transferred out is less than 3%	Percentage of patients who are 'Transferred out' is more than 5%	Transfer out can be a way of disguising default. Patients should be categorized as 'Transferred out' only if they have been given a Transfer Form to be taken to the facility where they are transferred to. Ensure the receipt of results of follow up sputum examinations and treatment

REPORTS ON PROGRAMME MANAGEMENT AND LOGISTICS

The Monthly/Quarterly Reports on Programme Management and Logistics allows monitoring the logistics and other management activities involved in successful implementation of RNTCP. These reports ensure that every TB suspect is properly evaluated for Tuberculosis and all diagnosed TB patients residing in the district are started on RNTCP treatment and included in the report. The report also includes information on the type of smear-positive patients, smear-negative and extra-pulmonary patients started on treatment other than DOTS. The reports also contain useful information on 'initial defaulters' at the district level for the programme staff to retrieve them.

Every month, all Peripheral Health Institutions (PHIs) complete the report and send it to the TU. The reports are scrutinized at the TU for organizing the supply of drugs and other essentials to the PHIs as well as DMCs. The TU and district level reports are compiled once in a quarter along with other programme reports and submitted to the state/national levels.

PHI LEVEL—MONTHLY REPORT ON PROGRAMME MANAGEMENT LOGISTICS AND MICROSCOPY

All PHIs are required to complete this report (page 80). PHI-level reports are vital for close monitoring of microscopy and logistics in the TU and hence should be filled accurately and submitted by all PHIs in the TU every month. Copies of the report should be sent by the 5th of the subsequent month to the CDHO/CDMO (Chief District Health Officer/Chief district Medical Officer) as well as the TB Unit. Thereafter, the DTO can collect copies of these reports from the office of the CDHO/CDMO for close monitoring of microscopy and logistics in the district on a monthly basis. The copies at the TU level can be used for monitoring as well as preparation of Quarterly Reports for the TU.

This Report has already been discussed in Module 4 (page 126 to 130).

TUBERCULOSIS UNIT (TU) LEVEL—QUARTERLY REPORT ON PROGRAMME MANAGEMENT AND LOGISTICS

The information reported in the monthly PHI Level reports is consolidated into the quarterly TU report (page 82). In addition, the TU report includes information on supervisory activities, quality of DOTS implementation, data on Laboratory quality control and staff position and training in the TUs. The TU situated at the DTC will also submit a TU report like all other TUs.

The number of DMCs in the TU under public sector, private sector and NGOs are to be reported. The number of monthly PHI reports expected in the quarter and the number received are also to be reported in the beginning of the report.

Supervisory Activities

This information is self-explanatory. The stipulated supervisory schedule is given in the module on *Conducting Supervisory Visits.* Although health unit may be visited more than once during the quarter, it is to be reported as a single visit.

Referral and Microscopy Activities

The information contained in these sections are the same as that given in the PHI Level report. The figures given here must cover the information from all PHIs and microscopy centers under the TU, including the microscopy centre of the TU.

Treatment Initiation

This part of the report is compiled from the monthly PHI Level reports. Care should be taken to avoid duplication of cases while doing the consolidation. Short-course rifampicin containing regimens should **never** be dispensed to out patients residing outside the district. One of the key responsibilities of the STS is to ensure that every smear-positive patient who is diagnosed is either started on treatment, or is properly referred to another area where the patient usually resides and will receive treatment.

Example:

In all the PHIs including the microscopy centres in one TU during one quarter, the referral, microscopy and treatment details were as follows:

Referral Activities

a.	Number of new adult outpatient visits	96000
b.	Out of (a), number of chest symptomatic **patients** referred for sputum examination	2250

Microscopy Activities

c.	Number of TB suspects patients whose sputum was examined for diagnosis	2250
d.	Out of (c), number of smear-positive patients diagnosed	215
e.	Number of TB suspects subjected to repeat sputum examination For diagnosis	150
f.	Out of (e), number of sputum smear-positive patients diagnosed	15
g.	Total number of sputum smear-positive patients diagnosed (d + f)	230

Treatment Initiation

h. Out of the smear-positive patients diagnosed (g), number put on DOTS within the TU	200
i. Out of the number of smear-positive patients diagnosed (g), number put on RNTCP Non-DOTS (ND1 and ND2) within the TU	12
j. Out of the smear-positive patients diagnosed (g), the number referred for treatment to other TUs within the district	05
k. Out of the smear-positive patients diagnosed (g), the number referred for treatment outside the district	05

In the example, there were 10 smear-positive patients who are residents of areas outside the TU. It may also be seen that eight smear-positive patients [(g) –(h+i+j+k)] who have neither been referred for treatment outside TU area nor put on treatment under RNTCP. It is the responsibility of the MOTC STS and STLS to put them under treatment through the concerned PHIs as soon as possible.

The DTO will ensure through his/her TU level staffs that all patients referred between TUs within the district are put on treatment. All such patients who are not initiated on treatment are considered as *initial defaulters* at the district level after consolidation of QPMR from TUs. "An initial defaulter will be a diagnosed sputum smear-positive patient who has been recorded in the RNTCP Laboratory Register with at least two positive smear results, but who has not been placed on either an RNTCP DOTS regimen or an RNTCP non-DOTS regimen, and has not been "referred for treatment" at an RNTCP DOTS Centre outside of the district." The DTO has to find out the reasons for the same and make attempts to reduce them.

Quality of DOTS implementation

The number of PHIs referring more than 2% of new adult out patients for sputum examination is reported in this section. This section of the report also helps in assessing whether the new smear-positive cases are started on DOTS within seven days of diagnosis and are registered within one month in the TB register as per RNTCP policy. During the supervision visits, an assessment of whether the NSP cases are receiving DOTS in the intensive phase are made. Similarly, the end of treatment follow-up sputum examination is supposed to be done **within one week of the last dosage** in case of smear-positive patients. Data on these aspects are also to be reflected in this section of the report.

Laboratory Quality Control Network

As discussed in the module on '*Supporting Laboratory Services'*, a quality control network is essential for the success of RNTCP. Every month, each STLS must visit all microscopy centres and review 5 smear-positive slides and 5 smear-negative slides. Instructions for completing this section of the Quarterly Report on Programme Management and Logistics are given in the module on '*Supporting Laboratory Services'*.

Staff Position and Training status

The format of this section is the same as that of the PHI Level report. Information from all PHIs in the TU area are consolidated and in addition, information on the staff involved in TB Control; at the TU level are also reported here.

Medications, Consumables and, Equipments

The sections on **Medications**, **Consumables**, **Equipment** are in the same format as that of the PHI Level report. These sections must include all PHIs in the area of the TU, as well as the TU itself. However, the columns on stock on first day of quarter and stock on last day of quarter should include the stocks at TU drugstores in addition to those reported by PHIs. If the TU drugstore is receiving drugs from DTC for onward distribution to PHIs, the column on stock received during quarter should include the receipts from DTC into the TU drugstore *as well as* the drugs that may have been supplied to any PHI directly (bypassing the TU drugstore) during the quarter. In rare circumstances a TU may be asked to transfer drugs or other lab consumables to other TU. This transfer should always be routed through the district.

The 'stock on first day of quarter' in the current quarter's report should always match with the 'stock on last day of quarter' in the previous quarter's report.

Staff of the TU should complete a PHI Level report for the specific institution where the TU is located, and then combine this information with information from all PHIs in the TU area.

DISTRICT LEVEL-QUARTERLY REPORT ON PROGRAMME MANAGEMENT AND LOGISTICS

District level Quarterly Report on Programme Management and Logistics (page 86) is compiled by:

- Consolidation of information from the TU level Quarterly Report on Programme Management and Logistics for example:
    - Referral Activities

- Microscopy Activities
- Some information about Treatment Initiation
- Most of the information regarding Quality of DOTS implementation
- Staff position and training of staff at periphery
- Consumption of Medications and Consumables
- Information regarding equipments at TB Units

- Consolidation of information from TU levels along with information from district head quarter for example:
  - Medications
  - Consumables
  - Staff position
  - Equipment in place
- Incorporation of information only from the district level for example:
  - Supervisory activities by staff of DTC
  - Initial Defaulters in the section of "Treatment Initiation"
  - TB-HIV Activities
  - Quarterly report on random blinded rechecking of routine slides
  - Staff position and training of staff at DTC
  - Stock transferred in, reconstitution of boxes during the quarter and stock transferred out in the section of "Medication"
  - Equipment in place at DTC
  - Participation of Medical Colleges and TB Hospitals
  - NGOs/ Private Sector participation in RNTCP
  - IEC
  - Financial Management

Along with the information on DMCs, the number of TUs in the public sector, private sector and NGOs are included in the beginning of the report itself. If any of the Quarterly Reports, including that on Programme Management and Logistics, are not submitted by any TU, the names of such TUs and the reports missing must be listed.

Some of the sections in the district level Report on Programme Management and Logistics are described in details below:

Treatment initiation – *Initial defaulters*

Information regarding *Initial Defaulters* is compiled **only** at the district level. An *Initial defaulter* is defined as a diagnosed sputum smear-positive patient who has been recorded in the RNTCP Lab register with at least 2 positive smear results, but who has not been placed on either a RNTCP DOTS treatment regimen or RNTCP non-DOTS treatment regimen, and has not been referred for treatment outside the district. The patients who are referred for treatment outside TU within the district are to be monitored at the district level during the monthly/quarterly meeting with the TU level staff. Every attempt should be made to put all these referred patients on treatment. If information regarding treatment of such referred patients can not be obtained, these patients are also considered as *Initial Defaulters.*

Laboratory Quality Control Network (Random Re- checking of Routine Slides)

Any DMC who has High False (High False Positive or High False Negative) Results at least once at any time during the calendar year (January to December) must be included in the report.

Example:

District 'X' has 10 DMCs (named DMC A to J).

Quarter	Performance of DMCs	How to Report
1st Quarter	Only DMC 'C' has High False Results	Number (%) of DMCs having High False Results: 1(10%)
2nd Quarter	DMC 'B' and DMC 'E' have High False Results	Number (%) of DMCs having High False Results: 3(30%)
3rd Quarter	DMC 'C' has High False Results	Number (%) of DMCs having High False Results: 3(30%) *DMC 'C' has already been included in 1st quarter so not counted again*
4th quarter	No DMC has High False Results	Number (%) of DMCs having High False Results: 3(30%)

Referral of suspected TB cases from VCTC

The districts/states implementing the TB-HIV action plan have to complete this section of the report. This section reports the number of TB suspects referred from VCTCs to RNTCP units for sputum smear examination. The number of TB cases diagnosed among these suspects and those started on treatment are also reported in this section.

Quarterly report should be compiled by reviewing the records (refer section 9.9: TB/HIV and RNTCP-NACO co-ordination) of number of TB suspects referred from VCTC to RNTCP diagnostic units 4-6 months earlier. For example, if the quarterly reports are being prepared on 7th October 2004(for 3rd quarter) the subjects referred during 2nd quarter of 2004(April to June) are to be included.

Medical Colleges and TB Hospitals

The number of Medical Colleges and TB Hospitals in the government and private sectors are reported in this section. The number of these institutions having an RNTCP facility is reported separately. The Medical Colleges having an RNTCP facility are usually provided with some minimum staff on contractual basis. The details of such staff appointed in the Medical Colleges are also to be reported in this section.

NGO/Private Sector participation in RNTCP

There are five different schemes (Schemes I, II, III, IV and V) under which an NGO can participate in RNTCP. Similarly, for private hospitals and practitioners, there are six different schemes (Schemes I, II, IIIA, IIIB, IVA and IVB). The number of NGOs as well as other private sector facilities participating in the different schemes in the quarter is to be reported in this section. This includes signed as well as unsigned schemes. However, if an NGO or a private sector facility is participating in more than one scheme, the same has to be counted only once and that also against the 'highest' scheme for the purpose of reporting.

If any new health facility pertaining to this sector has joined any of the schemes during the quarter, its particulars (name, address and name of the scheme/s) have to be reported separately.

IEC

The number of patients-provider group interaction meetings and community level meetings in the district during the quarter are reported in this section.

Financial Management

The funds required for implementation of RNTCP activities in the district are routed through the District TB Control Society (DTCS), which is a registered autonomous body.

The DTCS is required to make an estimation of the budgetary requirements on the basis of the annual action plan before the commencement of a financial year. The funds are provided to the DTCS against these projected requirements in installments. The DTCS are also allowed to bring forward the unspent balance of funds from the previous financial year. The information of the funds received and the expenditure incurred during the quarter are reported in this section.

STATE LEVEL—QUARTERLY REPORT ON PROGRAMME MANAGEMENT AND LOGISTICS

The various sections of the district level quarterly report are included in the state level report (page 92). All the district reports are therefore collated under different sections to compile the state report. Only the supervision and monitoring carried out by the state head quarters staff (STO, Dy. STO, MO at STC and/or STDC officials) are reflected in this report. Similarly, the number of review meetings of DTOs held in the quarter along with the minutes of the meeting is to be reported. The information pertaining to providing district feedback along with TU-wise analysis is also required to be reported. The position and training status of state head quarters staff are to be reported. The complete details of the state level training conducted by STDC and State TB Cell are also reported in the relevant section. The financial management section of the report should contain the position of availability of funds, and its utilization during the quarter for the state as a whole. Thus, the expenditure position of the STCS should also reflect the expenditure incurred by all the DTCS.

Information on the functionality of the State Drug Stores (SDS) for anti-TB drugs is to be reported. In case a functional SDS exists, its monthly drug stock report has to be attached to the state report. Similarly, the quarterly report on infrastructure and activities of STDC and on State Task Force on Medical Colleges should be obtained by the State TB Cell and appended to the state quarterly report on Programme Management and Logistics.

Table 4: Calculate Programme Indicators from Quarterly report on Programme Management and Logistics

Indicator	Description	Calculation
Programme Management		
Programme management activities	Proportion of supervisory visits—for each level (national, state, district, sub-district). Compare the number of supervisory visits conducted quarterly to the number of supervisory visits planned.	**Numerator:** Total number of supervisory visits conducted by the staff at a given level. **Denominator:** Total number of supervisory visits planned at that level.
	Proportion of quarterly reports properly completed and received	**Numerator:** The number of Quarterly RNTCP Reports received and complete in all respects. **Denominator:** Total number of Quarterly RNTCP Reports expected.
	Proportion of programme staff in position (category-wise)	**Numerator:** Staff in position in the particular category. **Denominator:** Sanctioned strength in that category.
	Proportion of staff trained in RNTCP(category-wise)	**Numerator:** Staff trained in RNTCP of a particular category. **Denominator:** Staff in position in the respective category.
	Proportion of equipment in working condition	**Numerator:** Number of equipment in working condition. **Denominator:** Total number of equipment.

PERIODICALLY ASSESS THE QUALITY OF REPORTS

The purpose of Quarterly Reporting is to monitor the programme activities and performance. Timeliness and correctness of reports are crucial for it's usefulness. The due dates for submission of the district quarterly reports are given on page 79.

Examine completeness, consistency and credibility of reports

To assess the quality, review the Quarterly Report you receive for completeness, consistency and credibility.

Completeness: All the rows and columns of the report should be filled with relevant data, whether it pertains to the identification particulars of the district or programme data. No column should be left blank unless warranted.

Consistency: Examine the report carefully and make sure that numbers add up correctly. Also, check the internal consistency of the numbers. For example, in the Quarterly Report on Case Finding, the total number of New smear-positive cases in Block-1 should tally with the total number of New smear-positive cases in Block-2.

Credibility: Compare the reported data with the expected figures. For example, the number of pulmonary smear-positive cases reported in Block 1 of the Quarterly Report on Case Finding and the number of suspects examined for diagnosis (row (b) in Microscopy Activities of the report on programme management and logistics) should follow the relationship of approximately 10 suspects to 1 pulmonary smear-positive case. If the proportion is away from the above, the information may not be credible.

Examine case notification and detection rates

Case notification rates indicate the extent to which patients with pulmonary smear-positive tuberculosis are coming to the health services for treatment. Case notification rates are the number of tuberculosis cases detected in a specified time period (for example, in a year) in unit population (usually in 1 00 000) in a defined area (e.g. district/state). For each state (or district), you can calculate the case notification rates for all types of cases, such as:

- New pulmonary smear-positive cases
- New pulmonary smear-negative cases
- Relapses
- Re-treatment cases
- Extra-pulmonary cases

However, **the most important case notification rates to monitor are those of the infectious forms of tuberculosis:**

- New pulmonary smear-positive cases
- Relapses
- Other smear-positive re-treatment cases

Examine the trends in case notification rates over a period of time. You can calculate an annualized case notification rate by multiplying the number of cases in a quarter by 4. The number of cases per lakh population per year existing in the community is

estimated to be 75 New smear-positives[1], 75 New smear-negatives, 38 smear-positive previously treated cases (Relapse, Failure, Treatment After Default) and 15 New extra-pulmonary cases. Thus around 203 patients of all types are expected to exist per lakh population. If at least 70% of the existing cases are detected and placed on treatment, under RNTCP, then at least 142 all types of cases per lakh population will be placed on treatment under RNTCP. Approximately 20% of the new smear-negative and extra-pulmonary cases are expected to be seriously ill and will therefore be treated with Cat I.

To calculate the case detection rate in a district (or state) for New smear-positive cases for a year, divide the number of New smear-positive cases registered during the year by the estimated number of New smear-positive cases. Multiply the decimal by 100 to express the same as a percentage.

Consider a district with a conversion rate of more than 90%, but a low case notification rate (e.g. 20%). This means that you are providing effective treatment but are not reaching many cases. The objective of case detection is to detect at least 70% of the estimated load and the case detection rate should increase over a period of time. As word spreads in the community about the effectiveness of RNTCP, more individuals start coming for treatment. It is estimated that there are 75 New smear-positive patients per lakh population per year (estimated ARI: 1.5%) in India. The zonal estimates for new smear position cases per lakh population are given in module 9 (page 162).

Analyse the results from the Microscopy centre

Look at the positivity rate among the TB suspects undergoing sputum smear examinations. Compare the number of *suspects* whose sputum smears were examined to the number of *smear-positive patients* diagnosed. For every 10 suspects examined, approximately one pulmonary smear-positive case is expected. If there is a marked difference in this proportion, it might be due to a problem with the quality of diagnosis in the laboratory or the inadequacy of trained staff. It could also be indicative of a low prevalence of tuberculosis in the community. You will need to investigate further to know the exact cause.

For each quarter, compare the numbers in the column **No. of suspects examined by microscopy** to the numbers in the column **No. of smear-positive patients found**. There should be approximately a 10:1 ratio in each quarter.

Examine treatment outcomes; especially cure rates for new smear-positive cases and relapses

For Relapse and Re-treatment cases the duration of treatment is 8 months. The STS prepares the report on results of treatment for the cohort only after all the Relapse and re-treatment cases complete their treatment. Therefore, when RNTCP is implemented in a district, the first Quarterly Report on Results of Treatment will be completed in the

[1] The estimate for new smear-positives will vary according to the respective Zonal ARTI figure e.g. North Zone will be 95, for East Zone and South Zone it is 75 and for West Zone it is 80. ARTI for the state of Orissa is 85.

fourth quarter after the strategy was introduced in the district. After that, the Quarterly Report on Results of Treatment should be completed every quarter.

Evaluate Results of Treatment for the group of cases registered in the quarter 13–15 months earlier (cohort analysis). Recall that the cure rate for pulmonary New smear-positive cases is the number of New smear-positive cases cured divided by all registered pulmonary New smear-positive cases. Ensure that **no** cases are excluded from the denominator (e.g. deaths, transferred out) while calculating the cure rate.

All cases started on treatment should be evaluated and the outcome recorded (into 6 outcome categories: cured, treatment completed, failure, died, defaulted and transferred out). If there is no information on a patient (e.g. the patient is reported to have moved out but was not transferred) the case should be classified as 'defaulted'.

Examine the summary report tables for indicators of Programme Management Activities

1. Examine the number of supervisory visits from state to district and from district to health units to ensure that it is happening as per policy.

2. Examine the number of Quarterly Reports properly completed and received from the districts that have implemented the revised strategy.

3. Monitor the consumption of drugs (number and type used) against the estimates of drug consumption. After the first year of implementation of RNTCP, the estimate of drug requirement should be based on the number of patients registered for treatment in the immediately preceding quarter, i.e. notification from the Quarterly Report on Case Finding. It is important to ensure that districts do not run out of drugs.

4. Monitor the quality of sputum smear examination. Determine the number of slides accurately read as smear-positive or smear-negative out of a sample of slides.

5. Quality of DOTS implementation, participation of NGOs and other private sector institutions in RNTCP, IEC, financial management etc. are certain other areas which are monitored through the programme management and logistics report.

PROVIDE FEEDBACK

Feedback will help in improving the accuracy and promptness of reporting. When the findings are as per expectations, you can congratulate the programme managers on successfully implementing RNTCP. When the analysis indicates problems with the data, investigate the reasons for the problems during your next visit (sooner, if necessary). Interact with the staff responsible for the activities and design actions required to resolve the problems.

Regardless of whether you are congratulating someone's performance or working with them to investigate problems in performance, feedback is important. Feedback indicates to the field personnel that the information they collect is used and appreciated.

Feedback can include:

- comments on the completeness, consistency, credibility and timeliness of reports;
- comparisons of performance of different geographic areas (e.g. among states, or among districts within a state);
- information about the programme's effectiveness based on findings of the report
- suggestions for improving the quality of the reports;
- information that might be helpful in solving problems;
- words of praise on doing a good job, or encouragement to do a better job.

Methods of providing feedback

The methods of providing feedback include:

- letters sent every quarter summarizing the findings of the report and including appropriate summary tables and charts;
- periodic group meetings to encourage communication;
- supervisory visits conducted by you and other staff.

Summary of key indicators, possible causes, and possible responses to problems is given in earlier pages in this module.

Due dates for reports from Tuberculosis Units to DTC in the year 2003

Due On	Quarterly Report on	Period Covered
7 January 2003	Case Finding	1 October – 31 December 2002
	Programme Management	1 October – 31 December 2002
	Sputum Conversion	1 July – 30 September 2002
	Results of Treatment	1 October – 31 December 2001
7 April 2003	Case Finding	1 January – 31 March 2003
	Programme Management	1 January – 31 March 2003
	Sputum Conversion	1 October – 31 December 2002
	Results of Treatment	1 January – 31 March 2002
7 July 2005	Case Finding	1 April – 30 June 2003
	Programme Management	1 April – 30 June 2003
	Sputum Conversion	1 January – 31 March 2003
	Results of Treatment	1 April – 30 June 2002
7 October 2003	Case Finding	1 July – 30 September 2003
	Programme Management	1 July – 30 September 2003
	Sputum Conversion	1 April – 30 June 2003
	Results of Treatment	1 July – 30 September 2002

The District TB Officer should retain one copy for record. The quarterly reports should be submitted to the Central TB Division (Nirman Bhavan, Directorate General of Health Services, Ministry of Health and Family Welfare, New Delhi 110 011; electronically at quarterlyreports@tbcindia.org), the State TB Officer and the STDC wherever existing, at the latest by the 24th of the month.

MONTHLY REPORT ON PROGRAMME MANAGEMENT, LOGISTICS AND MICROSCOPY

Peripheral Health Institution Level

Note: *All PHCs/ CHCs/ referral hospitals/ major hospitals/ specialty clinics/ TB hospitals/ Medical colleges to submit their monthly reports in this format.*

Name of Peripheral Health Institution: _____

TU: _____ District: _____

Month: _____ Year: _____

Medications

Item	Unit of Measurement	Stock on first day of month (a)	Stock received during month (b)	Patients initiated on treatment (c)	Stock on last day of month (d) =a+b-c	Quantity Requested (e)= (c X 2) – d
Category I	Boxes					
Category II	Boxes					
Category III	Boxes					

Item	Unit of Measurement	Stock on first day of month	Stock received during month	Consump-tion during month	Stock on last day of month	Quantity Requested
Pouches of blister strips for prolongation of intensive phase	Pouches each with 12 blister strips					
INH 300 mg	Tablets					
INH 100 mg	Tablets					
Streptomycin 0.75 g	Vials					
Rifampicin 150 mg	Capsules					
Pyrazinamide 500 mg	Tablets					
Ethambutol 800 mg	Tablets					

Staff Position and Training

Category of staff	Sanctioned	In place	Trained in RNTCP
Medical Officer			
Laboratory Technician			
Pharmacist			
MPH Supervisors			
Multipurpose Health Workers			
TBHV			
STLS*			

* STLS to be reported by medical colleges only

Referral Activities (To be filled in by all PHIs from OPD Register)

a.	Number of new adult outpatient visits	
b.	Out of (a), number of chest symptomatic **patients** referred for sputum examination	

Microscopy Activities (To be filled in by only PHIs which are a DMC from Laboratory Register)

c.	Number of TB suspects whose sputum was examined for diagnosis	
d.	Out of (c), number of sputum smear-positive patients diagnosed	
e.	Number of TB suspects subjected to repeat sputum examination for diagnosis	
f.	Out of (e), number of sputum smear-positive patients diagnosed	
g.	Total number of sputum smear-positive patients diagnosed (d + f)	

Treatment Initiation (To be filled in by only PHIs which are a DMC from Laboratory Register and Referral for Treatment Register)

h.	Of the smear-positive patients diagnosed (g), number put on DOTS	
i.	Of the number of smear-positive patients diagnosed (g), number put on RNTCP Non-DOTS (ND1 and ND2)	
j	Of the smear-positive patients diagnosed (g), the number referred for treatment to other TUs within the district	
k.	Of the smear-positive patients diagnosed (g), the number referred for treatment outside the district	

Consumables (To be filled in by only PHIs which are a DMC)

Item	**Unit of Measurement**	**Stock on first day of Month**	**Stock received during Month**	**Consumption during Month**	**Stock on last day of Month**	**Quantity requested**
Sputum containers *	Nos.					
Slides	Nos.					
Carbol Fuchsin	Litres					
Methylene Blue	Litres					
Sulphuric Acid	Litres					
Phenol / hypochlorite	Litres					
Immersion Oil	mL					
Methylated Spirit	Litres					

* PHIs that are not a DMC, but have been supplied with sputum containers, should complete this row.

Equipment in place (To be filled in by only PHIs which are a DMC)

Item	**Number in place**	**In working condition**	**Not in working condition**
Binocular microscopes			
Monocular microscopes			

Name of officer reporting (in Capital Letters) :_____

Signature: _____ Date : _____

QUARTERLY REPORT ON PROGRAMME MANAGEMENT AND LOGISTICS

Tuberculosis Unit Level (including Tuberculosis Unit at DTC)

Name of the TB Unit:_____ State:_____
Name of the District:_____ Quarter:_____
Total population of the TB Unit (in numbers):_____ Year: _____

Stake- holders	Public Sector (including Medical Colleges, Govt. health department, other Govt. department and PSUs)	Private Sector (Private Medical College, Private Practitioners, Private Clinics/Nursing Homes and Corporate sector)	NGOs	Total (in the TU)
Number of DMC				

A. Number of PHIs expected to submit monthly PMRs	
B. Number of PHIs that submitted monthly PMRs for all 3 months in the quarter	

The following reports are enclosed (Tick [✓] to indicate that the report is enclosed)

- ☐ Quarterly Report on Case - Finding
- ☐ Quarterly Report on Sputum – Conversion
- ☐ Quarterly Report on Results of Treatment

If any report is not enclosed, give reason _____

Supervisory activities

Type of Unit	Number of (1) in the TB Unit	Number of (2) participating in the RNTCP	Number of these (3) visited * during quarter by		
(1)	(2)	(3)	(4)		
			MO-TC	STS	STLS
D Microscopy Centres					
PHIs other than DMC					
Medical College					
TB Hospital					
Other Govt. hospitals					
Treatment Observation Centres/DOT providers					
Non-governmental organization health facilities					
Private sector hospital/ Nursing home					
Patients					
VCTC					

* Write only the number of health facilities visited and not the number of times that they were visited

Referral Activities

a.	Number of new adult outpatient visits	
b.	Out of (a), number of chest symptomatic **patients** referred for sputum examination	

Microscopy Activities

c.	Number of TB suspects whose sputum was examined for diagnosis	
d.	Out of (c), number of sputum smear-positive patients diagnosed	
e.	Number of TB suspects subjected to repeat sputum examination for diagnosis	
f.	Out of (e), number of sputum smear-positive patients diagnosed	
g.	Total number of sputum smear-positive patients diagnosed (d + f)	

Treatment Initiation

h.	Of the smear-positive patients diagnosed (g), number put on DOTS within the TU	
i.	Of the number of smear-positive patients diagnosed (g), number put on RNTCP Non-DOTS (ND1 and ND2) within the TU	
j	Of the smear-positive patients diagnosed (g), the number referred for treatment to other TUs within the district	
k.	Of the smear-positive patients diagnosed (g), the number referred for treatment outside the district	

Quality of DOTS implementation

Number (%) of PHIs referring 2-3% of New Adult out patients for sputum examination	
Number (%) of NSP cases started on RNTCP DOTS treatment within 7 days of diagnosis (Information from TB Register)	
Number (%) of NSP cases registered within one month of starting RNTCP DOTS treatment (Information from TB Register)	
Number (%) of NSP cases on RNTCP DOTS treatment who received DOT during IP as per guidelines [Information from patient interviews conducted by MO-TC during the quarter]	
Number (%) of cured NSP cases* having end of treatment follow-up sputum examination done within one week of last dose (Information from TB Register)	

* These cases should be from the same quarterly cohort which have been included in the report on Results of Treatment

Laboratory Quality Control Network (Unblinded On-site supervision)

Initial Reading	**Total number of slides**	**Number of slides cross-checked by STLS**	**Supervisor reading**		**Total number of discordant slides**
			Number of positives	Number of negatives	
Positive slides					
Negative slides					

Staff Position and Training

(Tick [☐] if in place or not during quarter and trained or not)

Medical Officer_-TB Control (MO-TC) ☐ Yes ☐ No Trained in RNTCP ☐ Yes ☐ No

Full-time Senior Treatment Supervisor (STS) ☐ Yes ☐ No Trained in RNTCP ☐ Yes ☐ No

F/T Senior Tuberculosis Laboratory Supervisor (STLS) ☐ Yes ☐ No Trained in RNTCP ☐ Yes ☐ No

Category of staff	Sanc-tioned	In Place	In place and trained in RNTCP	Trained in RNTCP in past quarter	Total trained in RNTCP since implementation	Re-trained in RNTCP in past quarter
Medical Officer (at BPHC / PHC / CHC / other)						
All Laboratory Technicians/Microscopists in the TB Unit (**including** designated MCs)						
Laboratory Technician/Microscopist of designated MCs						
Pharmacist						
MPH Supervisor						
Multipurpose Health Worker or equivalent						

Medications

Item	Unit of Measure-ment	Stock on first day of Quarter	Stock received during the quarter	Patients initiated on treatment	Stock on last day of Quarter (a+b) – (c)	Quantity Requested [(c/3) x 4] – (d)
		(a)	(b)	(c)	(d)	(e)
Category I	Boxes					
Category II	Boxes					
Category III	Boxes					

Item	Unit of Measurement	Stock on first day of Quarter	Stock received during the quarter	Consump-stion during Quarter	Stock on last day of Quarter (a+b) – (c)	Quantity Request-ed
		(a)	(b)	(c)	(d)	(e)
Pouches of blister strips for prolongation of intensive phase	Pouches each with 12 blister strips					
INH 300 mg	Tablets					
INH 100 mg	Tablets					
Streptomycin 0.75 g	Vials					
Rifampicin 150 mg	Capsules					
Pyrazinamide 500 mg	Tablets					
Ethambutol 800 mg	Tablets					

Is there any drug at the risk of expiry*? Yes No

If yes attach details

* Cat I 12 months Cat II 14 months Cat III 11 months

Is there any expired drugs? Yes No

If yes attach details

Consumables

Item	Unit of Measure-ment	Stock on first day of Quarter	Stock received during Quarter	Consum ption during Quarter	Stock on last day of Quarter	Quantity reques-ted
Sputum containers	Nos.					
Slides	Nos.					
Carbol Fuchsin	Grams / Litres					
Methylene Blue	Grams / Litres					
Sulphuric Acid 25%	Litres					
Phenol	Grams / Litres					
Immersion Oil	mL					
Methylated Spirit	Litres					

Equipment in place

Item	Number in place	In working condition	Not in working condition and since when
Monocular microscopes			
Binocular microscopes			
Two-wheeler			

Vehicle for MO-TC: ☐ Jeep in working condition ☐ Hired vehicle ☐ Personal vehicle ☐ None

Name of Medical Officer Tuberculosis Control reporting (in Capital Letters) : _____

Signature: _____.

Date: _____.

QUARTERLY REPORT ON PROGRAMME MANAGEMENT AND LOGISTICS

District Level

Name of the District: _____ State: _____
Total population of the District (in numbers): _____ Quarter: _____
Population of the District covered: _____ Year: _____
by the RNTCP (in numbers):

Stakeholders	Public Sector (including Medical Colleges, Govt. health department, other Govt. department and PSUs)	Private Sector (Private Medical College, Private Practitioners, Private Clinics/Nursing Homes and Corporate sector)	NGOs	Total (in the district)
Number of TU				
Number of DMC				

The following reports are enclosed (Check [□] to indicate that report is enclosed)

- ❑ Quarterly Report on Case Finding (number of TB Units reporting*:_____)
- ❑ Quarterly Report on Sputum Conversion (number of TB Units reporting* :_____)
- ❑ Quarterly Report on Treatment Outcomes (number of TB Units reporting* :_____)
- ❑ Quarterly Report on Programme Management and Logistics (number of TB units reporting*:_____)

*If any TB Unit did not report, list name(s) and report(s) _____

_____

A. Number of PHIs expected to submit monthly PMRs	
B. Number of PHIs that submitted monthly PMRs for all 3 months in the quarter	

Supervisory activities by the Staff of the DTC (DTO and second MO of DTC)

Type of Unit	Number of (1) in the District	Number of (2) participating in the RNTCP	Number of these (3) visited * during quarter by	
(1)	(2)	(3)	(4)	
			DTO	MO(s)-DTC
Tuberculosis Units				
Designated MCs				
PHIs other than DMCs				
TB Hospital/ Medical College				
Other Govt. hospitals				
Treatment Observation Centres/DOT providers				
Non-governmental organization health facilities				
Private sector hospital/ Nursing home				
Patients				
VCTC				

* Write only the number of health facilities visited and not the number of times that they were visited

Referral Activities

a.	Number of new adult outpatient visits	
b.	Out of (a), number of chest symptomatics referred for sputum examination	

Microscopy Activities

c.	Number of chest symptomatic patients whose sputum was examined for diagnosis	
d.	Out of (c), number of smear-positive patients diagnosed	
e.	Number of TB suspects subjected to repeat sputum examination for diagnosis	
f.	Out of (e), number of sputum smear-positive patients diagnosed	
g.	Total number of sputum smear-positive patients diagnosed (d + f)	

Treatment Initiation

h.	Of the smear-positive patients diagnosed (g), number put on DOTS within the district	
i.	Of the number of smear-positive patients diagnosed (g), number put on RNTCP Non-DOTS (ND1 and ND2) within the district	
j.	Of the smear-positive patients diagnosed (g), the number referred for treatment outside the district	
k.	Initial defaulters k = g – (h+i+j)	

Quality of DOTS implementation

1.	Number (%) of NSP cases started on RNTCP DOTS treatment within 7 days of diagnosis (Information from TB Unit PMR report)	
2.	Number (%) of NSP cases registered within one month of starting RNTCP DOTS treatment (Information from TB Unit PMR report)	
3.	Number (%) of interviewed NSP cases on RNTCP DOTS treatment who received DOT during IP as per guidelines (Information from patient interviews conducted by the DTO and MO-DTC during the quarter)	
4.	Number (%) of cured NSP cases* having end of treatment follow-up sputum examination done within one week of last dose (Information from TB Unit PMR report)	

* These cases should be from the same quarterly cohort which have been included in the report on Results of Treatment

TB-HIV (to be reported by districts/states implementing TB-HIV Action Plan)

Referral of suspected tuberculosis cases from VCTC to RNTCP diagnostic units

		HIV positive	HIV Negative
a.	Number of persons suspected to have TB and referred to RNTCP Unit		
b.	Out of the above persons (a), number diagnosed as having:		
	(i) Sputum Positive TB		
	(ii) Sputum Negative TB		
	(iii) Extra-Pulmonary TB		
	Total diagnosed TB patients		
c.	Out of above total (b) diagnosed TB patients, number receiving DOTS		

Random blinded re-checking of routine slides at DTC

Number (%) of DMCs with High False Results (HFN and/or HFP results) in the year (January to December):

Staff Position and Training

(Tick {☐} if in place or not during quarter and trained or not)

District Tuberculosis Officer in place ☐ FT* ☐ PT* ☐ No — Trained in RNTCP ☐ Yes ☐ No

Statistical Assistant in place ☐ Yes ☐ No — Trained in RNTCP ☐ Yes ☐ No

Treatment Organizer in place ☐ Yes ☐ No — Trained in RNTCP ☐ Yes ☐ No

Laboratory Technician in place ☐ Yes ☐ No — Trained in RNTCP ☐ Yes ☐ No

Data Entry Operator ☐ Yes ☐ No — Trained in Epi centre ☐ Yes ☐ No

* FT: Full-time PT: Part-time

Indicate numbers at all Tuberculosis Units and DTC combined

Category of staff	Sanct-ioned	In Place		In place and trained in RNTCP	Trained in RNTCP in past quarter	Total trained in RNTCP since implemen tation	Re-trained in RNTCP in past quarter
		State Government Staff/ staff from other programmes	Contractual under RNTCP				
Second Medical Officer of the DTC							
Designated Medical Officer (MO-TC) of the TB Unit							
Medical Officer (at BPHC / PHC / CHC/other)							
Senior Treatment Supervisor (STS)							
Senior Tuberculosis Laboratory Supervisor (STLS)							
All Laboratory Technicians/ Microscopists in the district (including designated MCs)							
Laboratory Technician/ Microscopist of designated microscopy centres							
Treatment Organizer							
Pharmacist							
MPH Supervisor							
Multipurpose Health Worker or equivalent							
TB Health Visitor							

Medications

Item	Unit of Measure-ment	Stock on first day of Quarter	Stock received during the quarter	Stock transf-erred in	Recon-titution of boxes during Quarter	Stock Transf erred Out *	Patients started on treatment	Stock on last day of Quarter (a+b+c+ d) – (e+f)	Qty. Reque sted *[(f/3) X 7]-g*
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Category I	Boxes								
Category II	Boxes								
Category III	Boxes								

Item	Unit of Measure-ment	Stock on first day of Quarter	Stock received during the quarter	Stock transf -erred in	Recon-titution of boxes during Quarter	Stock Transf -erred Out *	Consu mption during Quarter	Stock on last day of Quarter (a+b+c+d) – (e+f)	Qty. Reque -sted
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Pouches of blister strips for prolongation of intensive phase	Pouches each with 12 blister strips								
INH 300 mg	Tablets								
INH 100 mg	Tablets								
Streptomycin 0.75 g	Vials								
Rifampicin 150mg	Capsules								
Pyrazinamide 500 mg	Tablets								
Ethambutol 800 mg	Tablets								

* Enclose copy of drug transfer out form

Is there any drug at the risk of expiry*? Yes No

If yes attach details

* Cat I 12 months Cat II 14 months Cat III 11 months

Is there any expired drugs? Yes No

If yes attach details

Consumables

Item	Unit of Measurement	Stock on first day of Quarter	Stock received during Quarter	Consumption during Quarter	Stock on last day of Quarter
Sputum containers	Nos.				
Slides	Nos.				
Basic Fuchsin	Gms				
Methylene Blue	Gms				
Sulphuric Acid Conc	Litres				
Phenol	Grams				
Immersion Oil	mL				
Methylated Spirit	Litres				

Equipment in place

Item	Number in place	In working condition	Not in working condition and since when
Monocular microscopes			
Binocular microscopes			
X-ray machine of DTC			
Photocopier			
Computer			
Internet connection			
Overhead projector			
Fax machine			
Two-wheeler			

Vehicle for DTO: ☐ Jeep in working condition ☐ Hired vehicle ☐ None

Participation of Medical Colleges and TB Hospitals

(a) Nature of ownership

Health facility	Government		*Private*		Total	
	With RNTCP facility	Without RNTCP facility	With RNTCP facility	Without RNTCP facility	With RNTCP facility	Without RNTCP facility
Medical Colleges						
TB Hospitals						

(b) Staff provided on contractual basis to Medical Colleges

Category of Staff	Total number in the district
MO	
STLS	
LT	
TBHV	

Number of NGOs participating in RNTCP (signed as well as unsigned schemes) during the quarter*: ____ (No.)

	Scheme I	Scheme II	Scheme III	Scheme IV	Scheme V
Signed					
Unsigned					
Total					

* In the event of an NGO participating in more than one scheme, the NGO may be shown against the higher scheme adopted (enter one facility against one scheme only).

Number of Private Hospitals/ Practitioners participating in RNTCP (signed as well as unsigned schemes) during the quarter:_____(No.)**

	Scheme I	Scheme II	Scheme III	Scheme IV	Scheme V
Signed					
Unsigned					
Total					

** In the event of a private sector facility participating in more than one scheme, the private sector facility may be shown against the higher scheme adopted (enter one facility against one scheme only).

Attach list of NGOs and private sector institutions, which have started participating in any of the above schemes in the most recent quarter including name, address, and scheme.

IEC

Number of patient-provider group interaction meetings held during the quarter reported on:

Number of community meetings held during the quarter reported on:

Financial management

a. Budget proposed by the district as per the Annual Action Plan
b. % of budgeted funds received from State during the financial year (from SOE and Annual Action Plan)
c. Total available funds [unspent balance brought forward from previous financial year + budget received]
d. % of available funds (c), expended during the financial year (from SOE and Annual Action Plan)

Name of District (Municipal) Tuberculosis Officer reporting (in Capital Letters) :

Signature:_____

Date:_____

QUARTERLY REPORT ON PROGRAMME MANAGEMENT AND LOGISTICS

State Level

Name of the State: _____ Quarter: _____

E-mail address of STO: _____ Year:_____

Number of RNTCP districts/reporting units in the State: _____

Number of RNTCP districts/reporting units with DTC:_____

The following reports are enclosed (Tick [✓] to indicate that report is enclosed)

- ❑ Quarterly Report on Case Finding (number of Units reporting*:_____)
- ❑ Quarterly Report on Sputum Conversion (number of Units reporting*:_____)
- ❑ Quarterly Report on Results of Treatment (number of Units reporting*:_____)
- ❑ Quarterly Report on Programme Management and Logistics (number of Units reporting*:_____)
- ❑ Quarterly Report on Infrastructure and Activities of STDC:
- ❑ Quarterly Report on State Task Force on Medical Colleges

(Unit – This would generally be the district, however in certain cases the district may have 2 or more separate reporting units like Municipal Corporation and rural areas. Each reporting unit should be counted for reporting purpose)

*If any unit did not submit reports, list name(s), report(s), reason(s) and action taken_____

_____

Supervision and monitoring by the State

Number of districts in the RNTCP visited during quarter (By STO, Dy STO, MO at STCS and/or STDC officials)	**Number of districts not visited, attach list of districts not visited with reason/s**

Review meeting of all DTOs of RNTCP Districts held this quarter? ❑ Yes ❑ No

If Yes: attach minutes. If No; reason/s _____

Was TU-wise analysis done and distributed to all districts? ❑ Yes ❑ No

Was individual district feedback provided to the districts? ❑ Yes ❑ No

Referral Activities

a.	Number of new adult outpatients attending different health facilities	
b.	Out of (a), number of chest symptomatics referred for sputum examination	

Microscopy Activities

c.	Number of chest symptomatics whose sputum was examined for diagnosis	
d.	Out of (c), number of smear-positive patients diagnosed	
e.	Number of TB suspects subjected to repeat sputum examination for diagnosis	
f.	Out of (e), number of sputum smear-positive patients diagnosed	
g.	Total number of sputum smear-positive patients diagnosed (d + f)	

Treatment Initiation

h.	Of the smear-positive patients diagnosed (g), number put on DOTS within the districts	
i.	Of the number of smear-positive patients diagnosed (g), number put on RNTCP Non-DOTS (ND1 and ND2) within the districts	
j.	Of the smear-positive patients diagnosed (g), the number referred for treatment (inter-district)	
k.	Initial defaulters k= g – (h+i+j)	

Quality of DOTS implementation

Number (%) of NSP cases started on RNTCP DOTS treatment within 7 days of diagnosis (Information from District Report)	
Number (%) of NSP cases registered within one month of starting RNTCP DOTS treatment (Information from District Report)	
Number (%) of interviewed NSP cases on RNTCP DOTS treatment who received DOT during IP as per guidelines (Information from patient interviews conducted by STO, State TB Cell and STDC staff during the quarter)	
Number (%) of cured NSP cases* having end of treatment follow-up sputum examination done within one week of last dose (Information from District Report)	

* These cases should be from the same quarterly cohort which have been included in the report on Results of Treatment

Number of districts for which an internal evaluation was performed in the quarter:

Number of District Internal Evaluation reports sent to CTD in the quarter:

TB-HIV (to be reported by districts/states implementing TB-HIV Action Plan)

Referral of suspected tuberculosis cases from VCTC to RNTCP

	HIV positive	HIV Negative
a. Number of persons suspected to have TB and referred to RNTCP Unit		
b. Out of the above persons (a), number diagnosed as having:		
(i) Sputum Positive TB		
(ii) Sputum Negative TB		
(iii) Extra-Pulmonary TB		
Total diagnosed TB patients		
c. Out of above total (b) diagnosed TB patients, number receiving DOTS		

Random blinded re-checking of routine slides done in the district

Total number of DMCs in the State:

Number (%) of DMCs with High False Results (HFN and/or HFP results) in the year (January to December):

Staff Position and Training during quarter

(Tick [✓] if in place or not during quarter and trained or not)

State Tuberculosis Officer in place ☐ FT* ☐ PT* ☐ No Trained in RNTCP ☐ Yes ☐ No

Deputy State Tuberculosis Officer in place ☐ FT* ☐ PT* ☐ No Trained in RNTCP ☐ Yes ☐ No

Medical Officer State HQS in place (Regular/Contractual)* ☐ Yes ☐ No Trained in RNTCP ☐ Yes ☐ No

IEC Officer in place (Regular/Contractual)* ☐ Yes ☐ No Trained in RNTCP ☐ Yes ☐ No

Accountant, State TB Cell in place (Regular/Contractual)* ☐ Yes ☐ No Trained in RNTCP ☐ Yes ☐ No

Other staff of State TB Cell

Statistical Assistant (Regular/Contractual)* ☐ Yes ☐ No

DEO (Regular/Contractual)* ☐ Yes ☐ No Trained in Epi Centre ☐ Yes ☐ No

Driver ☐ Yes ☐ No Trained

*Tick (✓) whatever is applicable for each category of staff above

Staff position for the whole state (all districts combined)

Category of staff	Sanc-tioned	In place		In place and trained in RNTCP	Trained in RNTCP in past quarter	Total trained in RNTCP since implementation	Re-trained in RNTCP in past quarter
		State Govern-ment Staff	Contrac-tual under RNTCP				
District Tuberculosis Officer							
Medical Officer – STDC							
Medical Officer of the DTC							
Designated Medical Officer TB Control (MO-TC) of the TB Unit							
Medical Officer (at BPHC PHC/CHC/other)							
Senior Treatment Supervisor (STS)							
Senior Tuberculosis Laboratory Supervisor (STLS)							
Laboratory Technician/ Microscopist of **all** microscopy centres (**including** designated MCs)							
Laboratory Technician/ Microscopist of **designated** microscopy centres							
TB Health Visitor							
Pharmacist							
MPH Supervisor							
Treatment Organizer							
Multipurpose Health Worker or equivalent							

Details of training activities held at STDC/State level during this quarter

Category of trainees (specify if re-training)	No. of trainees batch-wise	From (Date)	To (Date)	Duration (Days)
	(a)			
	(b)			
	(c)			
	(d)			
Total training days				

Equipment in place

Item	Number in place			In working condition		
	State HQ	STDC	All RNTCP Districts	State HQ	STDC	All RNTCP Districts
Binocular microscopes						
X-ray machine of DTC						
Photocopier						
Computer						
Internet connection						
LCD projector						
Overhead projector						
Jeep						
10 seater bus						
Two-wheeler						
Fax machine						
Incubator						
Class I laminar flow cabinet						
Inspissator						
Centrifuge						

Drug susceptibility testing facility available ❑ Yes ❑ No Location:

State Drug Store Status

Functional State Drug Store for anti-TB drugs in place? ❑ Yes ❑ Nil

If yes: whether monthly drug-stock report attached? ❑ Yes ❑ No

Medications

Item	Unit of Measure-ment	Stock on first day of Quarter	Stock received during the quarter	Stock transf-erred in	Recon-titution of boxes during Quarter	Stock Transf-erred Out *	Patients started on treatment	Stock on last day of Quarter (a+b+c+d) – (e+f)	Qty. Requested *[(f/3) X 7]-g*
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Category I	Boxes								
Category II	Boxes								
Category III	Boxes								

Item	Unit of Measure-ment	Stock on first day of Quarter	Stock received during the quarter	Stock transf-erred in	Recon-titution of boxes during Quarter	Stock Transf-erred Out *	Consu mp-tion during Quarter	Stock on last day of Quarter (a+b+c+d) – (e+f)	Qty. Requested
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Pouches of blister strips for prolongation of intensive phase	Pouches each with 12 blister strips								
INH 300 mg	Tablets								
INH 100 mg	Tablets								
Streptomycin 0.75 g	Vials								
Rifampicin 150mg	Capsules								
Pyrazinamide 500 mg	Tablets								
Ethambutol 800 mg	Tablets								

* Enclose copy of drug transfer out form

% (and names) of districts having drug stocks for less than one month at the end of quarter (from "Medications" section of District PM Report):

Participation of Medical Colleges and TB Hospitals

(a) Nature of ownership

Health facility	Government		*Private*		Total	
	With RNTCP facility	Without RNTCP facility	With RNTCP facility	Without RNTCP facility	With RNTCP facility	Without RNTCP facility
Medical Colleges						
TB Hospitals						

(b) Staff provided on contractual basis to Medical Colleges

Category of Staff	Total number in the district
MO	
STLS	
LT	
TBHV	

NGOs participating in RNTCP (signed as well as unsigned schemes) during the quarter*: _____(No.)

	Scheme I	Scheme II	Scheme III	Scheme IV	Scheme V
Signed					
Unsigned					
Total					

* In the event of an NGO participating in more than one scheme, the NGO may be shown against the higher scheme adopted (enter one facility against one scheme only).

Private Hospitals / Practitioners participating in RNTCP (signed as well as unsigned schemes) during the quarter: _____(No.)**

	Scheme I	Scheme II	Scheme III	Scheme IV	Scheme V
Signed					
Unsigned					
Total					

** In the event of a private sector facility participating in more than one scheme, the private sector facility may be shown against the higher scheme adopted (enter one facility against one scheme only).

IEC

Number of patient-provider group interaction meetings held during the quarter reported on:

Number of community meetings held during the quarter reported on:

Financial management

a. Budget proposed by the State as per the Annual Action Plan _____

b. % of budgeted funds received from CTD during the financial year (from SOE and Annual Action Plan) [As a % of (a)] _____

c. Total available funds [unspent balance brought forward from previous financial year + budget received] _____

d. % of available funds (c), expended during the financial year (from SOE and Annual Action Plan) _____

Name of officer reporting (in Capital Letters with designation): _____

Signature: _____

Date: _____

Module 7:

Conducting Supervisory Visits

MODULE 7: CONDUCTING SUPERVISORY VISIT

INTRODUCTION

In the preceding modules you have learnt about many of the activities which must be properly performed to detect and cure TB patients in your area. You cannot perform these activities all by yourself. You need the cooperation of workers in health units and microscopy centres in the district. You will supervise the performance of the workers involved in the programme.

The objective of supervision in TB programme is to ensure that:

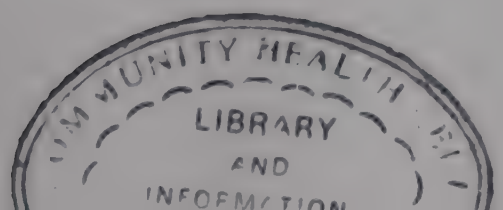
- All TB suspects attending health facilities are identified and subjected to sputum microscopy for diagnosis
- All TB cases diagnosed are put on treatment and
- All TB cases put on treatment complete the same and are cured

Supervision is the process of supporting workers to improve their performance and reinforcing good practices as per guidelines in order to achieve the above. Supervision is ensuring that tasks are done properly as per guidelines. It is a fact-finding process and not a fault-finding mission.

A good supervisor is a FRIEND, PHILOSOPHER and GUIDE for his colleagues and subordinates.

Supervisory visits to health facilities give you the opportunity to assess the performance and provide technical advice and guidance so that the workers can correctly perform programme activities. Regular supervisory visits should be conducted with emphasis on helping the workers identify and solve problems. This will create a good working relationship among workers. They will be less worried about you finding 'faults', and may be more willing to discuss problems and work with you to identify solutions.

Supervisory visits give workers the opportunity to talk with you. The interest you show during these visits can motivate people to perform their best in achieving the goals. Most of the problems have "local" solutions. However when you find problems which cannot be easily resolved by interacting with the workers of the health facility, discuss with higher level authorities, viz., District Tuberculosis Officer (DTO), Chief Medical Officer (CMO), State Tuberculosis Officer (STO), etc.



Your area is more likely to manage TB patients successfully when you supervise effectively and workers perform activities correctly. In this section, you will learn how to prepare for and conduct supervisory visits to health facilities in your area.

Supervision ensures all TB Patient and in particular:

- **Sputum positives are correctly diagnosed and placed on DOTS**
- **Sputum positives placed on DOTS are cured**

SUPERVISORY VISITS

Prepare for Supervisory visits to Health Facilities

Before undertaking the supervisory visit, examine the monthly and quarterly reports, and findings and recommendations of previous visit(s). This will help you to prioritize the areas you should check. Prior planning is needed regarding the time required for the visit and the items to be checked during supervisory visits.

In order to make your supervisory visit to a health facility more effective, you will need to develop a monthly advance tour programme, indicating WHEN, WHERE and WHOM to visit.

Format for advance tour programme

Name of Supervisor: Duty Station: Month/Year:

Period (Dates/From - to)	Place of visit	Mode of travel	Whom to visit

Copy to: Appropriate authorities

Decide WHEN, WHERE and WHOM to visit

As per guidelines shown in next page you need to visit different types of health facilities at required intervals. Some health facilities would require more frequent supervisory support. This can be decided on the basis of certain performance indicators derived from various records and reports. For example, areas or health facilities having the following indicators will have to be more closely supervised:

- Low proportion of patients receiving directly observed treatment as per guidelines
- High proportion of patients who were wrongly categorized
- Sputum conversion rate for new sputum smear-positive patients at 3 months is less than 85%
- Cure rate for new sputum smear-positive patients is less than 80%
- High proportion of sputum negative and extra-pulmonary cases
- Low case detection of new sputum smear-positive cases
- During your supervisory visits, you should meet key personnel like MOs, LTs, DOT-providers, etc. In addition, you should visit patients' homes, private institutions and community leaders.

Preparing for Supervisory Visits

Review previous reports

- Review quarterly reports from previous quarters
- Analyze trends in key indicators
- Review previous supervisory visit reports

Prioritize sites for

- Sputum smear conversion rate < 85%
- Cure rate < 80%
- Default rate >8%
- Proportion of smear-negative and extra-pulmonary cases is high

Develop a checklist

- Organize the required information in the form of a checklist
- The checklist should be easy to use

Table: Methodology of supervision and frequency of visits

Category of supervisor	Methodology of supervision	Number of supervisory visits
DTO/MO – DTC	Interview the MO-TC, MO I/C of PHC-CHC, STS, STLS, LT and DOT-provider, health personnel of other sectors (NGO, private etc.) and the person in-charge of anti-TB drug & consumable storage. Interact with community and local opinion leaders Randomly interview patients and community leaders. Inspect records of the TU, PHC and CHC, and stock of anti-TB drugs and laboratory consumables. Randomly check the microscopy centre and treatment observation centres.	Visit all TUs every month and all DMCs every quarter. Visit all CHCs and Block PHCs in the district every quarter, one sub-centre from each Block PHC area and a proportion of treatment observation centres every quarter. Conduct supervisory visit at least 3-5 days a week. Visit at least three patients at their homes per visit
MO-TC	Interview the MO I/C BPHC/CHC/ PHC. Randomly interview patients and community leaders. Interact with community and local opinion leaders Randomly check the microscopy centre and treatment observation centre ; stock of anti-tuberculosis drugs and laboratory consumables.	Visit all DMCs every month. Visit all CHCs/BPHCs/ PHCs and a proportion of treatment observation centres at least once every quarter. Conduct supervisory visits 7days a month. Visit at least three patients at their homes per visit.
STS	Interview MPHS and MPWs at the PHC sub-centre. Inspect records, Tuberculosis Treatment Cards and Tuberculosis Laboratory Register. Randomly interview patients.	Visit all PHIs at least once every month and all treatment observation centres once every quarter. Visit all new sputum positive patients at their home within one month of treatment initiation. Conduct supervisory visits at least 5 days a week.
STLS	Inspect all microscopy centres and laboratory records.	Visit all microscopy centres in the jurisdiction of the TU at least once a month. Visit all sputum collection centres at least once a month.

Notify the in-charge of the health facility of your proposed visit. Plan to spend adequate time at each health facility so that you can do a good job of supervision. Try not to rush

your visit. After the visit, send your report of the visit to the concerned facility and appropriate higher authorities. At the end of your supervisory visit, you should write your observations and recommendations in the "register for supervisory visit". This register should be maintained at all health facilities.

Activities to check at Health facilities

The checklist to be used during supervision of health facilities and patients' homes, is given in the module (appropriate checklists are included in modules 3 & 7).

Usually, it is not possible for you to check all the items in the checklist every time you conduct a supervisory visit. Some items can be checked periodically. Other items should be checked during every visit.

Remember, the highest priority is to ensure that smear-positive patients complete their treatment in time. It is especially important to ensure direct observation of treatment to smear-positive patients until they are cured.

Decide how to check each item

There are several ways to collect information during a supervisory visit. Decide which are the best methods to collect the information you want. Some of these methods are listed below:

1. **Discuss with Medical Officers and health workers**

   Informally assess knowledge and practices of the medical officers and health workers regarding their tasks. Try to resolve inadequacies during such interactions by mutual consultation. Always praise them for the work they have done well.

2. **Review records**

   Review records available at various levels during your supervisory visits. Important information regarding programme performance can be obtained from them. Records that need to be reviewed are as follows:

   - Lab register
   - Treatment cards
   - "Referral for treatment" form and register (if available)
   - Transfer form

- Register for drugs and consumables
- Register for supervisory visits
- TB register

Some information is entered in more than one record. For example, the results of sputum examination are entered into lab register, treatment card and TB register. Random checking of such information in various records should be done to ensure consistency. Inconsistencies should be discussed with the concerned personnel. **Good record keeping practices should be appreciated.**

Cross-check consistency between the records and reports, viz.:

- TB register, lab register and treatment cards
- monthly PHI-level report and lab register
- monthly PHI report and register for drugs and consumables
- monthly PHI-level report and quarterly programme management and logistics report
- quarterly reports and TB registers

3. Observe Medical Officers and health workers

Observe workers doing their work. This will give you information about how well they are performing tuberculosis-related activities. For example, in a designated microscopy centre, observe lab technician interacting with TB suspects, collecting sputum, preparing smears, staining slides and examining them.

Similarly, in a treatment observation centre watch DOT-provider administering treatment. Check if they are administering the correct number and type of drugs under direct observation. Always praise correct practices. Unless a health worker is doing something that endangers a patient's life, save critical comments till you can talk with the health worker in private. Do not criticize workers in public.

4. Interact with tuberculosis patients

Observe TB patients as they interact with MOs and health workers to see if they are understanding the information being provided. Ensure that the health workers behave respectfully with the patient. You should demonstrate practices of treating patients with respect.

Recognizing perceptions of the patient is crucial as it helps you understand how the programme is functioning and what areas need improvement. When you talk with patients, explain that you want to make sure that they are receiving good services and getting better. Interactions with patients and their family members at their homes are important activities. Such interactions should not be done in the presence of the concerned local workers, viz., lab technicians, DOT-providers, etc. However, in-charge of the health facility may be requested to accompany you during such home visits. Feedback should be provided to the local workers based on the observations. Cross-check the information obtained during patient interview with the records.

5. Examine supplies

Check to see if there is an adequate supply of:

drugs
needles and needle cutters
syringes
ampoules of water for injections
sputum containers
laboratory consumables
Laboratory forms for sputum examination
Tuberculosis Treatment Cards
Tuberculosis Identity Cards
Tuberculosis Transfer Forms
Referral for Treatment forms

Check whether essential equipment such as the microscope, sterilizer, etc. are in working condition. Look at the dates on the lab reagent bottles and patient-wise boxes. Make sure that workers are using the drugs and reagents with earlier expiry date before the stock with later expiry date. Drugs or consumables should not be kept beyond their date of expiry. During supervisory visits, take back the unused portions of patient-wise boxes of patients who have defaulted, died or been transferred out. Ensure that these drugs are not used for any patient, as this may result in incomplete treatment. All unexpired partially used patient-wise boxes should be reconstituted only at the district level.

Cross-check monthly PHI-level reports with drug and lab consumable registers followed by physical verification of existing stock.

Points to remember

- Supervisory visits help staff identify and solve problems.
- Supervision helps ensure that all smear-positive patients are detected and placed on treatment; and, that all smear-positive patients placed on treatment are cured.

- Prioritize centres for supervision depending on the following: sputum conversion rate < 85%, cure rate < 80%, default rate > 8%, and the proportion of smear-negative and extra-pulmonary cases is high.
- Supervision includes reviewing all RNTCP records and reports and interviewing patients and staff.
- Visiting patients and talking to them is an extremely important component of supervision. Talking to patients helps in validating the accuracy of RNTCP records. It also provides an opportunity to address any concerns patients might have, and to counsel them to take regular treatment.
- Supervise & see whether logistics of drugs and laboratory reagents are in place and functioning properly.
- Give priority to monitoring all new sputum smear-positive patients during your supervisory visit.
- Three key records—Tuberculosis Register, Treatment Card, and Laboratory Register - need to be checked during supervisory visits.

PROBLEM SOLVING

Problem solving is one of the important objectives of supervision. The steps for solving problems are described below.

Step 1 Describe the problems which was identified by answering these questions

- What is the problem?
- Where does the problem occur?
- With whom does the problem occur?
- When and how often does the problem occur?
- When did the problem start occurring?

Step 2 Identify possible causes by answering these questions

- Whether the person is aware of the responsibility and has been told to complete the task?
- Does the person have the skill or knowledge to do the task?

- Does the person want to do the task?
- Are there obstacles preventing the person from doing the task?

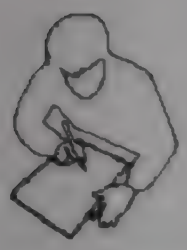
Step 3 Identify and implement solutions. The specific solution depends upon the cause(s) of the problem. Solutions that one arrives at should:

- Remove (or reduce) the specific cause(s):
- Be reasonable (affordable and realistic): and
- Not create other problems.

Group Discussion for problem solving

Discuss the following problem as a group. Use the "problem-solving" steps mentioned above to resolve this problem.

STS has reported that he has recently found about 30% cases who have previous history of anti-TB treatment for more than 1 month are receiving Category I regimen in a certain PHC.



EXERCISE 1

1. What are the main objectives of supervisory visits?

2. How would you prioritize health facilities for supervision?

3. What methods are used by the DTO/MO-TC for supervision?

4. What is the frequency of supervisory visits conducted by the DTO&MO-TC?

5. Which microscopy activities should be checked during a supervisory visit?

6. Which treatment activities should be checked during a supervisory visit?

7. What aspects of drug supply and stores should be checked during supervisory visits?

8. Which type of patients get the highest priority during supervisory visits?

9. Name the three most important records that must be checked and verified during supervision?

10. Describe the steps involved in problem-solving during supervision.

EXERCISE 2

In the following case studies, work with other participants to develop a checklist for a supervisory visit. The facilitator will provide you with background information about the health facilities.

Case Study 1

You have planned a supervisory visit to a designated microscopy centre. During your preparation for the visit, you have found that the proportion of new sputum negative cases is very high. Prepare a checklist to investigate this problem. What are the probable causes and solutions?

Case Study 2

You have planned to visit a PHC. The STS has reported recently that low proportions of TB cases are being administered directly observed treatment as per guidelines. Prepare a checklist to investigate the situation. Suggest measures to solve the problem.

WORKSHEET FOR CHECKLIST

EXERCISE 3

Conduct a site visit to the health facility. The facilitator will explain the details of this visit. Use the checklist you developed. After the site visit, there will be a group discussion on any problems your group found and the solutions you recommend. Use the worksheet on the opposite page to record your group's findings and recommendations. Your group will then present its findings and recommendations to the other participants in the course.

WORKSHEET FOR FINDINGS AND RECOMMENDATIONS

RNTCP: SUPERVISORY CHECK-LIST

A. Diagnostic Aspects

Review of resources

Please write Yes/No in the column "Observation"

No	Check-points	Observations
1	Is at least one trained Medical Officer available in the health facility?	
2	Is a full-time trained Laboratory Technician (LT) available for sputum microscopy?	
3	Have provisions been made for sputum collection when LT is absent?	
4	Is a functional binocular microscope available?	
5	Has the binocular microscope undergone any servicing during last 12 months?	
6	Are all essential lab consumables available adequately, enough to last at least for one month?	
7	Is running water available for sputum microscopy?	
8	Is electricity available for the binocular microscope?	
9	Have civil works been done in the Lab as per RNTCP guidelines?	
10	Are printed reference materials on standard operating procedures available?	

Review of forms, registers, records and reports

1	Are the Lab Forms for Sputum Exams filled correctly, completely and legibly?	
2	Is the Lab Register filled correctly, completely and legibly?	
3	Is the Lab Serial Number entered correctly, starting with 1 on 1 January of the year and continuing until 31 December?	
4	Are results correctly recorded?	
5	Are there 3 sputum smears for diagnosis in at least 8/10 patients?	
6	Are there 2 sputum smears for follow-up in at least 8/10 patients?	

7	Are positive results written as scanty, 1+, 2+ or 3+ in red and negative in black/blue?	
8	Are results up-to-date?	
9	Does the Lab register have the summary abstract completed at the end of each month?	
10	Is there a duplicate Lab Register?	
11	Are copies of supervisory reports of Senior TB Lab Supervisor available at DMC?	
12	Is there evidence of supervision by STLS on lab register?	
13	Is monthly PHI-level report on sputum microscopy and logistics being submitted by the health facility?	
14	Does the Tuberculosis Register contain all the smear-positive patients recorded in the Tuberculosis Laboratory Register? If the Tuberculosis Laboratory Register contains names of smear-positive patients which are not found in the Tuberculosis Register, do these patients belong to another TU/district?	
15	Is the Lab register consistent with the treatment cards and TB register? (Check information for at least 4-6 randomly selected new smear-positive patients.)	

Observe the Lab technician during the sputum-collection procedure

1	Did the LT check to ensure that the Lab Form was complete and correct?	
2	Is the sputum container clearly labeled on the side and not on the lid?	
3	Are each set of sputum samples from a single patient given a single Lab Serial Number?	
4	Is the Tuberculosis Number written in the space provided for all patients whose reason for examination is “follow-up” of treatment?	
5	Does the LT demonstrate to patients how to bring up sputum?	
6	Does the LT supervise patients when they provide spot sputum specimens?	
7	Does the LT visually examine the sputum provided to determine if it is sputum or saliva only?	

Observe the Lab technician preparing smears for examination

1	Does the LT use only new slides?	
2	Does the LT engrave the Lab Serial Number on each slide with a diamond marker?	
3	Does the LT use a different broom stick for each sputum smear?	
4	Are the sputum smears made on the slide of the correct size (2 cm x 3 cm) and thickness?	
5	Does the LT wait for the slide to dry before heating the slide to fix it?	
6	When the Lab technician fixes the slide by heating, does he do it for the proper duration of time?	
7	Is only "freshly prepared" carbol fuchsin being used, instead of ready-made commercially-available solutions?	
8	Is the carbol fuchsin free of particles and properly filtered at least every month?	
9	When the LT heats the carbol fuchsin, does s/he do it properly, avoiding boiling and allowing the slides to stand for 5 minutes after heating?	
10	Does the LT tilt the slides after rinsing with water to remove excess water?	
11	Is the sulphuric acid allowed to stand on the slide for the appropriate time period (2–4 minutes)?	
12	Is the methylene blue allowed to stand on the slide for the appropriate time period (30 seconds)?	

Observe the Lab technician examining slides under the microscope

1	While placing immersion oil on the slide, does the LT take care to avoid touching the slide with the applicator?	
2	While examining the slide with the X100 lens, does the LT take care to make sure that the lens does not touch the slide?	
3	Does the LT examine negative sputum smear slides for at least 5 minutes?	
4	Does the LT have correct knowledge about grading?	
5	Does the LT see 100 fields before declaring the smear as negative?	
6	Does the LT correctly complete the Lab Form for Sputum	

	Examination and Lab Register?	
7	Does the LT clean the X100 lens with lens paper or fine silk after completing the examination?	
8	Are slides correctly cleaned and maintained serially in slide boxes for review by the supervisor?	
9	Are all smear-positive results recorded in red ink in the Lab Register?	
10	After examining the slides, does the LT put the sputum containers and lids (with lids removed) along with the broom sticks, into a foot-operated bucket containing 5% phenol?	
11	Does the LT break all the remaining slides of the previous month after the EQA procedure is completed	
12	Does the LT ensure that smear-positive as well as smear-negative slides are not being re-used for AFB microscopy?	

Exit-interviews of at least 2 patients undergoing sputum microscopy

1	Do the patients know how to cough out good quality sputum properly?	
2	Do the patients know when they should return for the next sputum exams?	
3	Do the patients find the timings and location of the Lab convenient?	
4	Do the patients face any difficulties for undergoing sputum microscopy?	

B. Treatment Aspects

Review of TB Register

Sl No	Check-points	Observations
1	Is it numbered 1 from 1 January?	
2	Are names and addresses readable?	
3	Is the classification and outcome complete, correct and up-to-date?	
4	Are follow-up and results correct (Lab Number, slash if positive in follow-up) and up-to-date?	
5	Have pulmonary smear-negative patients been examined by sputum microscopy?	
6	Are quarterly reports correct?	
7	Are Transfer Forms correctly filled and filed?	
8	Are Referral forms correctly filled and filed?	
9	Are all new patients who are smear-positive at the end of 5 months or more categorized as 'Failure' and re-registered in Category II as 'Failure' cases?	

Review of Treatment Cards

Sl No	Check-points	Observations
1	Are the entries correct and legible?	
2	Is the correct treatment regimen prescribed?	
3	Is the intensive phase of treatment prolonged for one month for Category I and Category II patients who have positive sputum smears at the end of the intensive phase?	
4	Are Tuberculosis Treatment Cards maintained correctly and up-to-date?	
5	Is DOT administration done correctly?	
6	Are follow-up sputum examinations done at the correct time?	
7	Review the treatment of 5 smear-positive patients found to be AFB smear-positive during follow-up examination. Was the treatment correct?	

Interview at least 3 new smear-positive patients every field-visit day

Sl No	Check-points	Observations
1	Is the patient aware that he/she is/was undergoing treatment for TB? (Ask this question in private)	
2	Does the patient know the correct duration of treatment for his TB?	
3	Did the treatment of the patient start within 7 days of sputum microscopy?	
4	Has the patient taken more than 1 month of anti-TB treatment in the past?	
5	Did the patient take at least 20 of 24 doses (> 80% doses) under direct observation in the IP?	
6	Is participating in DOT convenient to the patient in terms of location?	
7	Is participating in DOT convenient to the patient in terms of timing?	
8	Did the patient have to pay for sputum examination or drugs under RNTCP?	
9	Did the patient mention that he provided 3 sputum samples before the start of treatment?	
10	Did the patient mention that he provided at least 2 sputum samples at the end of 2 months of treatment? Write NA, if this question is not applicable due to default, etc. (Correlate with TB register)	
11	Did the patient mention that he provided at least 2 sputum samples at the end of treatment? Write NA, if this question is not applicable due to default, etc. (Correlate with TB register)	
12	Age of the patient (write completed age in years)	
13	Sex of the patient (M=Male, F=Female)	
14	Was the patient satisfied with the interaction and support provided by the program staff?	
15	Are the findings of the patient interviews consistent with TB register?	

Interview and observe at least 3 DOT-providers

Sl No	Check-points	Observations
1	Is DOT being administered correctly?	
2	Is retrieval action taken within one day during the intensive phase and within one week during the continuation phase?	
3	Are the Tuberculosis Treatment Cards completed at the same time when treatment is given?	

Review organization of direct observation of treatment

Sl No	Check-points	Observations
1	Are alternative resources for observation (community volunteers, hospital staff, etc.) being used as necessary?	
2	Are patient-wise boxes marked for each patient?	
3	Do the amount of drugs in the boxes tally with those mentioned in the Treatment Card?	
4	Are sufficient stocks of drugs and other consumables available at the Peripheral Health Institution (PHI) level?	
5	Are water container and disposable glasses available at the treatment observation centre	

Inspect the drug storage area

Sl No	Check-points	Observations
1	Is it locked?	
2	Are the shelves in place?	
3	Is the inventory system in place?	
4	Are drugs with an early date of expiry placed in the front?	
5	Are all drugs kept off the floor and away from the wall?	
6	Are there adequate drugs and other consumables in the store?	

SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS OF VISIT

Name of health facility visited:	Date of visit:
Name and designation of the person completing this form:	
Number of visits made to this health facility in the current year (including the current visit):	

Key Observations and Recommendations	Responsible	What actions were taken [1]
Politico-administrative commitment and resource management: (including staffing, training, review meetings, etc)		
Diagnosis: (including binocular microscope, civil works, TB suspects undergoing sputum microscopy, sputum positivity rate, initiation of treatment, missing "diagnosed" patients, case detection, quality assurance, whether DMC functional, visits by STLS, referral system for diagnosed cases, etc)		
Drugs and lab consumables: (including drug stock levels in "months" as on last date of previous month, whether there was any stock-out of drugs or lab consumables for more than 7 days since last visit, etc)		
DOT and follow-up: (including adequacy of number of DOT-centers, health system delays in initiation of treatment, timeliness of sputum follow-ups, DOT-as-per-guidelines, outcome, patient transfer-out system, etc)		
Records and Reports: (including timeliness, completeness and correctness of records and reports: DMC-register, treatment cards, identity cards, TB register, transfer/referral forms, monthly PHI reports, quarterly TU reports, etc)		
IEC Activities: (whether adequate currently, future plans, etc)		
Special Groups: (pediatrics, slums, scheduled caste/tribe, etc)		
Findings of home visit of patients (categorization, DOT happening as per guidelines in IP & CP , follow up sputum microscopy correctly done & recorded)		

[1] *To be reviewed and mentioned during the subsequent supervisory visit*

Module 8:

Ensuring Logistics of Drugs and Other Material and Quality Assurance

MODULE 8: ENSURING LOGISTICS OF DRUGS AND OTHER MATERIAL AND QUALITY ASSURANCE

INTRODUCTION

Procurement, storage, maintenance of reserve stock and distribution of anti-TB drugs and other materials are essential for good quality services under Revised National TB Control Programme. One of your most important tasks is to make sure that all health facilities in your area have the drugs and other materials they need.

Materials required for management of TB cases include:

- **Drugs for anti-TB treatment**
- Treatment-related supplies, such as syringes, needles, water for injection, sterilizers, weighing scales for adults and children, water containers and disposable glasses for DOT-centres
- Lab consumables (reagents, sputum containers, slides, etc)
- Manuals, forms and registers
- Binocular Microscopes (BM)
- Four-wheelers, motorbikes, bicycles, photocopier, computer, etc

DRUGS FOR TB TREATMENT

An uninterrupted supply of good quality Anti-TB drugs is one of the five components of DOTS strategy being followed for implementation of RNTCP. A strong procurement and logistics management with respect to drugs is essential to strengthen every link in the drug supply chain, from manufacturer to patient. India has developed a unique system of providing drugs in Patient Wise Boxes (PWBs) which contain drugs for the entire duration of treatment for each category of patient. Once a patient is started on anti-TB treatment, a box is assigned to that patient, thus ensuring that the entire course is available uninterrupted. The effort in this direction was made possible by analyzing and improving existing systems. As a result of work done over the past few years, significant improvements in manufacturing, inspection, supply, storage and quality control practices and procedures have been achieved.

An efficient drug logistics system should ensure:

- A continuous and uninterrupted supply of quality anti TB drugs – so that all patients can be started on treatment within a week of diagnosis and expiry of drugs is avoided

The drug management cycle (Figure-1) depicts the policy and framework for management support starting with selection of drugs, their procurement, distribution and finally, their use. These are described below:

DRUG MANAGEMENT CYCLE

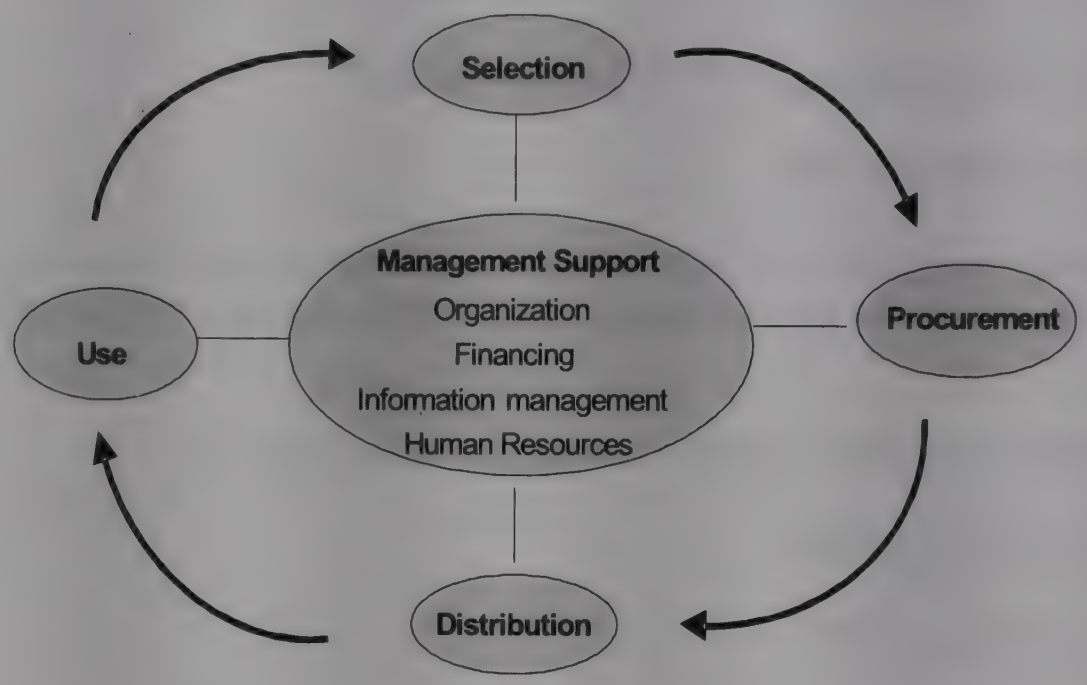


Figure 1: Drug Management Cycle

i. Selection

The essential drugs used in the Revised National TB Control Programme are: Rifampicin, Isoniazid, Ethambutol, Pyrazinamide and Streptomycin.

II. Procurement of drugs

Data for decision making is crucial to the operation of any logistics system. Commodity procurement and financing, shipment, scheduling, and routine ordering, among others, cannot be accomplished without accurate logistics data. The right amount of data needs to be captured from all levels of the system in a timely manner to ensure an uninterrupted supply of Anti-TB drugs despite unpredictable and rapid changes in consumption. Unpredictable changes in detection rates may occur due to increase in coverage, seasonal factors, etc. These factors need to be taken into account when calculating procurement

quantities. Moreover, the supply of anti TB drugs that are effective and of acceptable quality is the requirement for success of the programme.

Procurement for anti-TB drugs is done both for PWBs as well as for loose drugs. In exceptional circumstances, a few patients from RNTCP districts may have to be put on non-DOTS regimens. For such patients, loose drugs need to be procured. At present, loose drugs are also required for pediatric patients, adult patients with low body weights and for overweight patients. Although it is difficult to actually assess the number of such cases, it is important that drugs are procured for them also. In the near future, pediatric PWB will be available and used by RNTCP. Procurement of anti-TB drugs for RNTCP is made through an independent procurement agency appointed by the Ministry of Health and Family Welfare, Govt. of India.

III. Distribution

It is important to develop and implement a functional system for management of regular drug supply in the districts. Drug supplies are primarily effected from the manufacturer to the following (as shown in Figure-2):

- Government Medical Stores Depots(GMSDs) at Karnal, Mumbai, Kolkata, Chennai, Guwahati and Hyderabad
- State Drug Stores
- District TB Centres

DRUG DISTRIBUTION

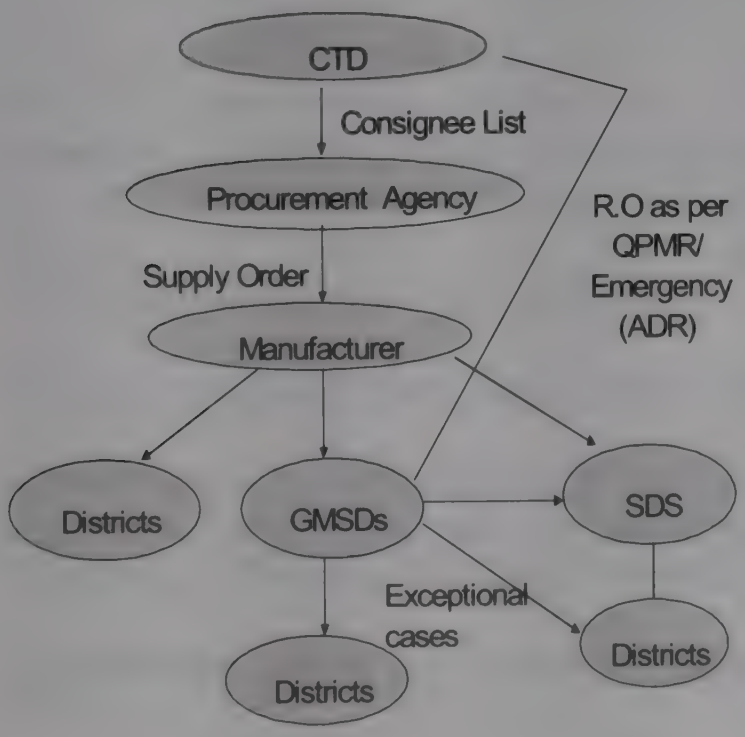


Figure 2: Drug Distribution

Establish storage procedures

Establish storage procedures to ensure that drugs and other supplies are:

1. **Protected from unauthorized access**

   To protect drugs and other supplies:

   - store drugs and other supplies in a secured stockroom;
   - access to the supplies should be limited to one or two persons at each level (e.g. the health unit pharmacist and supervisor) and ensure that one person is always available to distribute supplies;
   - access to the supplies must always be possible;

2. **Protected from heat, light, moisture/rain, dust, pests and fire**

   To protect inventory from **heat, light, moisture/rain, dust, pests and fire,** ensure that the national, district and peripheral levels:

   - use fans or special insulating materials for the roof to reduce the temperature;
   - keep the drugs in a cool place;
   - maintain the roof in good condition to prevent leakages;
   - store drugs and other supplies off the ground, away from walls and on shelves, to protect against damage by dampness and flood;
   - keep the stockroom clean and tidy;
   - never eat, drink, or smoke in the stockroom;
   - keep the walls and floor free of debris;
   - implement fire prevention measures.

3. **Easy to locate and identify**

   Health workers should organize the stockroom so that drugs and other supplies can be easily and quickly located and identified

   - Store drugs according to their expiry date with each drug clearly marked and differentiated

- Use the FEFO (First-Expiry, First-Out) rule: First drugs that are likely to expire are to be taken out/ supplied first

In order to ensure FEFO, drugs which are going to expire first should always be kept in front of those which are going to expire later. Expired drugs should never be stored with drugs which are being used.

4. **Maintenance of records:**

Maintain accurate and up-to-date records to know that:

- Sufficient stock is available at all levels; and
- there is no expiry of drugs

Ensure that the records match with the physical stock balance. For this purpose, physical verification should be carried out at least once in a year

MONITORING of drugs and logistics is important to ensure uninterrupted supply of drugs to RNTCP:

- Reduces overstocking: Avoidance of wastage of scarce resources leading to expiry of high value drugs
- Prevents stock-outs: Avoids delay in treatment initiation for diagnosed patients.

Monitoring is done through a two-tier monitoring system: a *central system* at Central TB Division (CTD) and a *decentralized system* by the State TB Officers (STOs) and the District TB Officers (DTOs). CTD reviews and ensures State and district-level drug adequacy whereas the STOs and the DTOs do the same up to the level of the DOT Centres. CTD ensures drug adequacy at districts by reviewing Quarterly Programme Management Reports (QPMR) received from the districts which is able to continuously monitor drug stock position including verification of Reports giving details of:

- Stock on the first day of the quarter
- Quantity Received during the quarter (including reconstitution and transfers)
- Patients started on Treatment during the quarter
- Stock on the last day of the quarter
- Quantity requested

Maintaining adequate supplies

It is very important to make sure that every health facility in your district has an adequate supply of anti-tuberculosis drugs. Patients must take all their drugs regularly to be cured of tuberculosis. Timely initiation of treatment is not possible if the supply of drugs is inadequate. In the following paragraphs you will understand the basis for stocking adequate amount of drugs at various levels

In a newly implementing district (after supply of drugs by Central TB Division), the stock is supplied from DTC to TU and then to PHI. At the beginning of the programme, the PHIs are supplied with a stock of two months (ie. stock for utilization in the first month along with a reserve stock of one month). Then every month they are supplied with stock from the TU which helps to maintain the reserve stock for a month at the PHI. This reserve stock helps the PHI to provide drugs if more patients are put on treatment in a particular month and to provide cover for delay in supplies from TU. Thus no patient is sent back due to a drug stock out even on a single occasion.

For the TU level to ensure that the PHIs have a month's utilization stock plus a reserve stock of one month, it needs to have a stock for two months at the beginning of the quarter. This will ensure a continuous supply of drugs.

The regular process of supply of new stock of drugs to the districts / SDS begins only when the districts submit their QPMR reports. The reports of the stocking units need to be submitted by the following dates:

Report of Stocking unit	Date of submission of report
PHI to TU	1st week of each subsequent month
TU to DTC	7th of the subsequent month at the end of the qtr
DTC to SDS / STO/ CTD	10th - 24th of subsequent month at the end of the qtr
SDS to CTD	24th of the subsequent month at the end of the qtr

In absence of a State Drug Store, these reports are expected to reach Central TB Division not later than 24th of the subsequent month at the end of the quarter.

Once the QPMRs are received by Central TB Division, it takes around 7-10 days for CTD/ SDS to process the requirement (from all districts of all states). Central TB Division issues drugs based upon closing stocks and stocking norms. The drugs are issued from the GMSDs either to the districts (in absence of an SDS) or to the SDS for onward distribution to the districts. GMSDs take about 15 days to dispatch the drugs up to districts or SDS (around 7-10 days). The SDS/ Districts should follow up with the GMSDs in case of delay in receipt of drugs after receipt of Release Order from Central TB Division. Drugs once received by the SDS are then transported to the districts. The district then passes the drugs to the TUs who in turn supply them to the PHIs.

It takes about 2 months after the beginning of a new quarter for the fresh stocks of drugs to reach the SDS/ Districts.

The district should have at least a utilization stock of 4 months at the beginning of the quarter. Similarly the State Drug Stores should have at least a reserve stock of 3 months of consumption of the state.

Thus the quantity of reserve stocks at each level at the start of the quarter (considering the receipt from one higher level) should be as follows:

Level	**Reserve stocks**
PHI	1 month
TU drug store	2 months
DTC drug store	3 months
State drug store	3 months

The amount of drugs required for monthly utilization at PHI level and for the next quarter at the TU, district & state level are calculated as below:

During the first week of each quarter, TU, district and state will have to fill the format for "Quarterly Report on Programme Management and Logistics (QPMR)". The data for this report would be generated from the monthly PHI-level reports.

Monthly PHI-level report on microscopy and logistics contain the following table for drug position:

Item	**Unit of Measurement (UOM)**	**Stock on first day of month (a)**	**Stock received during the month (b)**	**Patients initiated on treatment (c)**	**Stock on last day of month (d)= a+b-c**	**Quantity requested (e)=(c X 2) -d**
Category I	Boxes					
Category II	Boxes					
Category III	Boxes					

QPMR of TU contains the following table for drug position:

Item	Unit of Measurement (UOM)	Stock on first day of quarter (a)	Stock received during the quarter (b)	Patients initiated on treatment (c)	Stock on last day of quarter (d)= a+b-c	Quantity requested (e)={(c/3) X 4)}-d (including stock of TU & PHIs)
Category I	Boxes					
Category II	Boxes					
Category III	Boxes					

For QPMR of TU-level, stock on first day of quarter should always be equal to stock on last day of previous quarter. Similarly, for monthly PHI-level reports, stock on first day of month should always be equal to stock on last day of previous month. The information on "stock received during the quarter" should be obtained from the drug stock register and would include all receipts, irrespective of source of supply.

[QPMR of district and state–levels include additional columns for reconstitution and stock transfers. Also the quantity requested will be (Quarterly consumption / 3) X 7 for districts & (Quarterly consumption / 3) X 10 for the state level]

The columns (c), (d) and (e) of the section on medications (drugs) of the PHI and TU QPMRs are discussed in details below:

(c) Patients started on treatment during the quarter

These are the number of patients who have been started on treatment during the quarter being reported. This information can be obtained at the PHI-level from the treatment cards and drug stock register of the PHI. At the TU-level, this information can be obtained after consolidation of monthly PHI-level reports. This information is unlikely to match with Block 3 of case-finding report because patients may have been started on treatment but may have not been registered by the end of the month/quarter.

(d) Stock on last day of month:

Stock on last day of month for PHI-level reports should always be obtained from the drug stock-registers, after cross-verification with actual physical stock position. This information at the TU-level would be obtained after consolidation of all monthly PHI-level reports in the TU for the quarter and adding the TU stock to that (from Stock register after cross-verification with actual physical stock).

(e) Quantity requested :

Quantity requested at various levels is calculated as shown below:

Level	Stock for utilization	Reserve stock	Drug requirements
PHI	1 month	1 month	(Monthly consumption x 2) – (existing stock in PHI at end of the month)
TU drugstore	0 months	2 months	(Quarterly consumption / 3) x 4 – (existing stock in TU including PHI drug stores at end of the quarter)
DTC drugstore	0 month	3 months	(Quarterly consumption / 3) x 7 – (existing stock in DTC drug store including TU & PHI drug stores at end of the quarter)
SDS	0 months	3 months	(Quarterly consumption / 3) x 10 – (existing stock in SDS including stocks at all districts at end of the quarter)

Note: All opened boxes should be treated as utilized.
All unopened boxes should be treated as stocks.

Movement of drugs and stocking norms:

Given below is a representation of likely movement of stocks as per the stocking norms discussed above. This is under assumption that the districts in the future will always have the level of reserve stocks discussed above

Stocks to be maintained at each level

	1st Qtr							2nd Qtr									
	1st month			2nd month		3rd Month		1st month			2nd month				3rd Month		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
Level	1st day	1st day	End of month	1st week	End of month	1st week	End of month	2nd week	2nd week	End of month	1st week	2nd week	Receipt of Drugs	End of month	1st week	End of month	
SDS	3	3	3	3	3	3	3	3	3	3	3	0	3	3	3	3	
DTC	3	3	3	3	3	3	3	0	0	0	0	3	3	3	3	3	
TU	4	2	2	1	1	0	0	3	2	2	1	1	1	1	0	0	
PHI	0	2	1	1+1	1	1+1	1	1	1+1	1	1+1	1+1	1+1	1	1+1	1	
Total stock at the State level(months)	10	10	9	9	8	8	7	7	7	6	6	6	9	8	8	7	

	3rd Qtr									4th Qtr								
	1st month			2nd month				3rd month		1st month			2nd month				3rd month	
Level	2nd week	2nd week	End of month	1st week	2nd week	Receipt of Drugs	End of month	1st week	End of month	2nd week	2nd week	End of month	1st week	2nd week	Receipt of Drugs	End of month	1st week	End of month
SDS	3	3	3	3	0	3	3	3	3	3	3	3	3	0	3	3	3	3
DTC	0	0	0	0	3	3	3	3	3	0	0	0	0	3	3	3	3	3
TU	3	2	2	1	1	1	1	0	0	3	2	2	1	1	1	1	0	0
PHI	1	1+1	1	1+1	1+1	1+1	1	1+1	1	1	1+1	1	1+1	1+1	1+1	1	1+1	1
Total stock at the State level(months)	7	7	6	6	6	9	8	8	7	7	7	6	6	6	9	8	8	7

1st Quarter:

A new district is assumed to start its service delivery from 1st month of the 1st quarter. All the reserve stocks are properly placed in their drug stores in the levels as prescribed above. Drugs to the SDS are received only from the GMSDs

1st month: The first day position is as shown in (a) in the above table. On the first day, based on expected case detection, 2 months drugs (1 month utilization + 1 month stock) shall be transferred to the PHIs (b). By the end of the month, the PHIs are expected to be left with only the 1 month stock (c).

2nd month: Based on the monthly report of the PHIs (by 1st week), TU shall transfer drugs based on the patients initiated by the PHI in the previous month (d). By the end of the month, the PHI & TU shall now be left with only 1 month's stock (e).

3rd month: Similarly, based on the 2nd monthly report of the PHI, the TU shall transfer drugs to the PHI (f) & is now probably left with no stocks. At the end of the month, PHI is left with 1 month's stock (g).

2nd Quarter

1st month: The PHIs shall continue to submit their monthly reports by the 1st week. As the previous quarter has ended, the TUs will now need to submit their quarter reports to the DTC as well. Hence, consolidation of the monthly PHI reports shall be done at the TU & the report shall be submitted to the DTC. Based on this report, the DTC shall transfer 3 months stores based on the quarterly reports submitted by the TU, around the 2nd week (h). As soon as the TU receives the stores, 1 month stores, based on the monthly report submitted by the PHIs, shall also be transferred to the PHI (i).

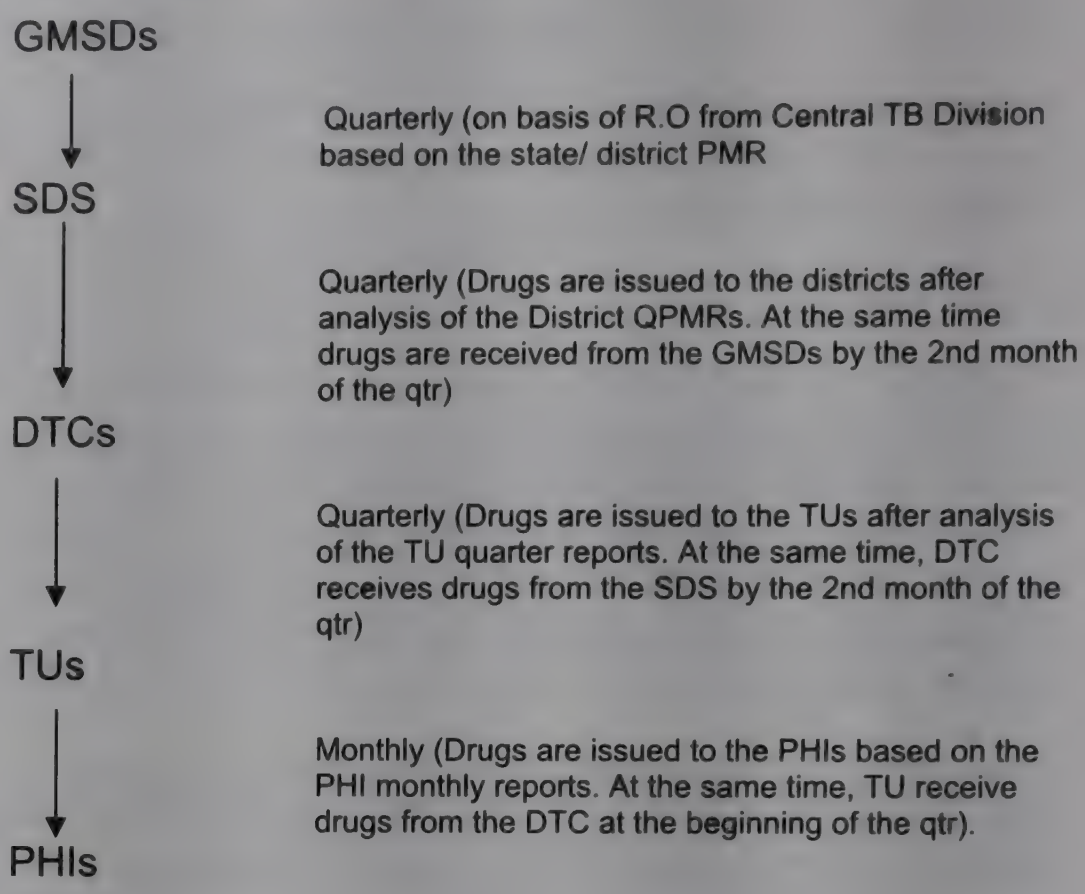
(Note: The DTC in turn will prepare its own report after consolidation of the TU reports & shall submit it to the SDS/ STO by the 10th -24th. SDS shall analyze the district reports & submit the State report to Central TB Division latest by 24th. Even in absence of an SDS in the State, the districts send their reports to Central TB Division with copy to STO. The Release Order for drugs shall be sent to the STO/SDS/ DTCs, as the case may be. Thus the recipient shall be fully aware of the quantity of drugs to be received by them.

2nd month: The TU shall transfer 1 month stock to the PHI as per the PHI's monthly report (k). Meanwhile, by the 2nd week or so, drugs equivalent to 3 months utilization shall be transferred from the SDS to the DTC (l). Around the same time, drugs from the GMSDs shall also arrive at the SDS or districts (in absence of the SDS)(m). The end of the month will witness reserve stocks at all the levels (n).

3rd Month: As usual, the TU shall transfer 1 month stock to the PHIs based on the monthly report of the PHI (o). At the end of the month, SDS, DTCs, TUs & PHIs will have the usual expected stocks (p).

3rd & 4th Quarter: The movement of stores shall be exactly as per the 2nd quarter stated above & it shall continue in all the succeeding quarters.

The above movement of drugs can be further explained in the following manner:



The number of prolongation pouches required for patients admitted in hospitals is estimated as below:

In order to facilitate DOTS during hospitalization, prolongation pouches (PP) would be supplied for treatment of admitted patients. All admitted patients receiving RNTCP regimens are registered in the TU where the hospital is located. At the time of discharge, patients would be sent out to their respective PHIs for further treatment as already explained in the flow chart for hospitalized patients in Module 4 (page 95).

The officer-in-charge of the hospitals can obtain these prolongation pouches from their concerned TUs based on their actual requirements, considering the number of admissions and average bed occupancy for TB patients. It must be noted that patients will need to be given one week of drugs at the time of discharge to cover the period of return to their respective PHI-areas.

The amount of drugs required for patients put on non-DOTS regimens and pediatric drugs are estimated as below:

In exceptional cases, non-DOTS regimens may have to be used under RNTCP. These drugs can be obtained, based on actual requirements, only from the DTC

All the pediatric drugs & drugs for over weight patients would be requisitioned according to the above-mentioned procedures (through Quarterly Programme Management Reports)

Use of drugs

The RNTCP drugs are used by TB Patients depending on the severity of the disease. The drugs are made available for the adults in PWBs and for children as loose drugs. In the near future, pediatric PWBs will be made available under RNTCP. Three different types of Treatment Regimens are followed keeping in mind the condition of the patient. Apart from the patients put on Category boxes, some patients may need to be put on loose drugs only which is decided upon by the doctor in-charge. Drugs are issued to the district, as mentioned above, on basis of Quarterly Programme Management Reports. In case of default, failure or death of a patient, the treatment boxes are re-constituted so that drugs assigned for such patients are not wasted and are used well within their expiry period.

RECONSTITUTION

Incomplete used boxes are at the risk of expiring if they are not reconstituted. As reconstitution is a highly technical activity, it should be preferably centralized at the DTC and carried out under the direct supervision of the DTO. Complete information about default, death and transfer out cases, including TB number, name of PHI and number of blister combipacks remaining unused in the category boxes should be made available and recorded in the 'Reconstitution Register' maintained at the DTC level. The number of reconstituted boxes should then be entered in the drug stock register as *receipts* and reported in the QPMR

Expiry dates must be clearly marked on all new labels of the reconstituted boxes. New boxes should never be used for purpose of reconstitution. However, prolongation pouches may be used for reconstitution of the incomplete boxes.

ADDITIONAL DRUG REQUEST (ADR)

The need for an ADR arises only if the patients put on treatment in the previous month in a quarter goes up, resulting in an insufficient stock balance in the district. To get the additional supply from CTD/ State Drug stores (SDS), an ADR for each item (on separate page) needs to be submitted by the DTO. Before sending an ADR to CTD or SDS, districts should consider and follow up the drugs that have been released and are being transported from state/central stores to the district.

Request for Additional RNTCP Drugs
Revised National Tuberculosis Control Programme

PLEASE USE BLOCK LETTERS:
Name of District: _____

Name of State: _____

Full name of DTO: _____

Office phone of DTO (if any) (Pl. give STD Code): _____

Office fax/E-mail ID of DTO (if any): _____

Residential phone of DTO (if any): _____

If none of above available, phone number at which message can be left for DTO: _

Complete one sheet for **each item** for which additional medicines or reallocation of medicines is requested. For example, if you are requesting additional Category I and Category III patient-wise box, then complete one sheet each for Category I and for Category III.

Item requested *(tick one only)*: ❒ Category I ❒ Category II ❒ Category III

❒ Prolongation pouches ❒ Isoniazid 100 mg ❒ Rifampicin 150 mg

❒ Pyrazinamide 500 mg ❒ Streptomycin 750 mg ❒ Isoniazid 300 mg

❒ Ethambutol 800 mg

List quantity of this item received in previous and current quarter:

Date Received	Total number received
1.	
2.	
3.	

Stock position on last day of previous month

Total balance of the unused item on hand at DTC drugstore (a)	Total balance of the unused item on hand at TU drugstores (b)	Total balance of the unused item on hand in PHIs (c)	Total balance of the unused item on hand in the entire district d=a+b+c

Utilization of the item for the entire district in previous month _____

Request for additional requirement of drugs: ❒ I request ____units of ____ [item].

This will be sufficient for _____ months.

Signature of DTO: _____

Date: _____

QUALITY ASSURANCE OF ANTI-TB DRUGS

The quality assurance is ensured in the following ways:

- For all the batches of the anti-TB drugs presented for inspection by the manufacturers, samples are taken and drugs are tested before these are cleared for dispatch.

- The GMSDs take samples of the drugs stored on a random basis for checking the quality.

- Central and State Drugs Inspectors take drug samples from the districts regularly and on receiving specific complaints. Such samples would be tested in central and state laboratories, respectively.

- As per protocol approved by Central TB Division, in each quarter one GMSD, one State Drug Store and five districts would be randomly selected for quality assurance of drugs. These samples would then be sent to an independent laboratory, contracted by Central TB Division.

TREATMENT-RELATED SUPPLIES, SUCH AS SYRINGES, NEEDLES AND STERILE WATER FOR INJECTION, ETC.

It is very important for every health facility that administers treatment to have an adequate supply of sterile water, disposable needles and syringes for giving streptomycin injections. This should be procured by District TB Control Society through local purchase. The requirements of these items should be matched with those of Injection Streptomycin vials. Add 10% to account for wastage. Remember that each patient who is put on Category II regimen would require 24 vials of Injection Streptomycin. Ensure that there is a sufficient supply of cotton and methylated spirit so that injections are always given under sterile conditions.

Example:

The District Tuberculosis Officer (DTO) of Srinagar District knows that 24 needles and 24 syringes are needed per patient. During the last quarter, his district treated **100** patients under CAT II. The DTO has *250 needles and 120 syringes at present*. The four steps for calculating the number of needles that should be ordered are:

Number of needles

Steps	Description of step	Resulting number
1	Determine the number of patients registered and prescribed Category II treatment in the last quarter. *Last quarter, 100 patients were prescribed the category II treatment regimen.*	100
2.	Multiply the number obtained in *step 1 by* the number of needles needed per patient *+ 10% wastage* *100 x 24 = 2400+240=2640*	2640
3.	Allow for reserve stock *2640 x 2 = 5280*	5280
4.	Account for the needles in stock. There are 250 needles in stock. *5280 – 250 = 5030*	5030

Therefore, the DTO needs to order 5030 needles for the Srinagar District.

The four steps for calculating the number of syringes that should be ordered are:

Number of syringes

Steps	Description of step	Resulting number
1	Determine the number of patients registered and prescribed Category II treatment in the last quarter. *Last quarter, 100 patients were prescribed the category II treatment regimen.*	100
2.	Multiply the number obtained in *step 1 by* the number of syringes needed per patient *+10% wastage* *100 x 24 = 2400*+240=2640	2640
3.	Allow for reserve stock *2640 x 2 =5280*	5280
4.	Account for the syringes in stock. There are 120 syringes in stock. *5280 – 120 = 5160*	5160

Therefore, the DTO needs to order 5160 syringes for the Srinagar District.

Making sure the sterilizer is in good working condition

In case disposable needles and syringes are not used, health workers would have to sterilize needles and syringes properly. So, in addition to ensuring an adequate supply of needles and syringes for your district, you also need to make sure that each unit that administers streptomycin has a sterilizer in good working condition.

LABORATORY EQUIPMENTS AND CONSUMABLES

1. Binocular Microscopes (BMs)

Sputum Microscopy is an essential part of RNTCP. It plays a major role in the programme and hence procurement of BMs becomes an important component in RNTCP. Procurement of binocular microscopes is undertaken by CTD and are delivered to the States / Districts. All BMs should be covered by annual maintenance contracts, at the end of their warranty periods.

Calculation for BMs

As per RNTCP guidelines, 1 BM is required for every designated microscopy centre (DMC). One DMC exists for every 1 lakh population (0.5 lakh population in hilly, tribal and difficult areas). In addition, RNTCP may also supply BMs to DMCs established in other sectors like ESIC, Public Sector Undertakings, etc., if required. BMs are also supplied by RNTCP to districts (depending on the number of DMCs/TUs) for implementation of EQA.

2. Sputum containers and slides

To keep health facility and microscopy laboratories supplied with sputum containers and slides, calculate the number of sputum containers needed for diagnosis and for follow-up examinations in each quarter. Then determine the number of slides needed. Place an order for the sputum containers and slides with the appropriate source. Visit each health facility that collects sputum specimens and microscopy laboratories to make sure there is an adequate stock of sputum containers and slides.

Calculate the number of sputum containers needed

During the first week of each quarter, calculate the quantity of sputum containers your district will need for that quarter. The following steps are required for this calculation:

1. Determine the number of new smear-positive cases registered and treated during the last quarter. Use the Quarterly Report on New and Retreatment Cases for this.

2. Determine the quantity of sputum containers needed for diagnosis as described below:

   Multiply the number of new pulmonary smear-positive cases by 10. The number of smear-negative, extra-pulmonary, and retreatment smear-positive cases should not be considered, because 10 symptomatic cases include all types of patients and because patients with failure and default are examined as follow-up. Ten is the average number of symptomatic required to be examined for detecting one case of New pulmonary smear-positive tuberculosis.

   Multiply the number obtained in *Step 2a* by 3. (3 sputum specimens are usually taken for each symptomatic patient.)

   Example: Last quarter, 40 New smear-positive cases were registered and treated in Jaunpur TU. To determine the number of sputum containers needed for diagnosis, multiply 40 by 10. 40 x 10 = 400. Multiply 400 by 3. 400 x 3 = 1200. The total number of sputum containers needed for diagnosis is 1200.

3. Determine the number of sputum containers needed for follow-up examinations. Follow-up specimens are taken for the majority of smear-positive patients on 3 separate occasions during their treatment (at the end of the intensive phase, 2 months into the continuation phase and at the end of treatment). Two sputum containers are needed for each follow-up examination because 2 sputum specimens are taken for each follow-up sputum examination.

   For each pulmonary smear-negative case, follow-up sputum is taken *twice.* Hence, multiply the number of pulmonary smear-negative patients by 4 (2 sputum samples each at the end of the intensive phase and at the end of treatment).

   The number of sputum containers for the examination of patients who remain sputum smear-positive at the end of 2 months and of retreatment patients who remain sputum smear-positive at the end of 3 months is not calculated. This number is usually very small and will not influence the stock.

   Add the number of sputum containers needed for diagnosis to those needed for follow-up examinations. After you determine the number of sputum containers needed for diagnosis and follow-up examinations, add these numbers to obtain the approximate number of sputum containers required for the quarter.

4. Allow for reserve stock: Allow sufficient reserve stock for 3 months.

5. Account for wastage: Add 10% to account for wastage of sputum containers.

6. Account for the sputum containers in stock.

On the last working day of the quarter, count the number of sputum containers presently in stock. Then, during the first week of the new quarter, subtract the number of sputum containers in stock from that needed for diagnosis and follow-up examinations as calculated (*Step 4*).

Calculate the number of slides needed

There should be approximately the same number of slides in stock as sputum containers, because one slide is used to examine one specimen in a sputum container. Therefore, once you have determined the number of sputum containers needed for the next quarter, order the same number of slides. There may be a need for slightly more number of slides than containers because of unavoidable breakage of slides.

Order sputum containers and slides

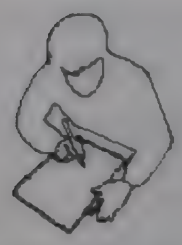
After you have calculated the number of sputum containers and slides needed for your district, order the supplies. Order the sputum containers during the first week of the quarter so that the health units and microscopy laboratories have enough sputum containers to collect sputum specimens and the microscopy laboratories have enough slides to conduct sputum smear examinations. In the RNTCP, these supplies will be procured by the District Tuberculosis Society. It is important that good quality slides, containers and reagents are purchased.

Distribute sputum containers and slides

After you receive the supply of sputum containers and slides for the quarter, distribute the sputum containers to all peripheral health institutions in the district. The supply of sputum containers to those PHIs that are not functioning as sputum collection centres or DMCs would facilitate follow-up examinations because patients can be provided with the same for morning samples. Reserve stocks should be maintained at all levels.

Make sure there is an adequate supply of sputum containers and slides

When you visit the PHIs, check the supply areas for an adequate stock of sputum containers and slides. Ask the health workers or laboratory technicians if they think the stock is sufficient. Estimate if there is enough stock to last until the end of the quarter, and if there is sufficient reserve stock.



EXERCISE 1

In this exercise you will calculate the number of sputum containers and slides needed by a district for the current quarter.

According to the Quarterly Report on New and Retreatment Cases, Tonk District began treatment of 80 New pulmonary smear-positive cases, 20 retreatment (smear-positive) cases and 60 pulmonary smear-negative cases last quarter. There were 125 sputum containers and slides currently in stock in the beginning of the quarter.

Calculate the number of sputum containers and slides needed for the quarter.

Answer the following questions:

1. How many sputum containers should you order for Tonk District?

2. How many slides should you order for the district?

FORMS AND REGISTERS

As you have learned throughout this course, there are several tuberculosis forms, registers and reports used in the district.

Forms, registers & Reports	Person responsible for maintenance of records/forms/reports
Forms	
Lab form for sputum examination	Medical Officer and Lab Technician
Mycobacteriology Culture/Sensitivity Test Form	Medical Officer
"Referral for treatment" form	Medical Officer
TB Treatment card	Medical Officer, DOT-Provider
TB identity card	Medical Officer
TB transfer form	Medical Officer
Additional Drug Request (ADR) form	District TB Officer
EQA Forms and Annexures	District TB Officer
Registers	
Lab Register	Lab Technician, STLS
TB register	Senior Treatment Supervisor
"Referral for Treatment" Register	Medical Officer
Supervisory register	Medical Officer
Stock registers (for capital assets)	Pharmacist / Storekeeper
Stock registers (for consumables)	Pharmacist / Storekeeper
Indent issue voucher book	Pharmacist / Storekeeper
Reconstitution register	Pharmacist / Storekeeper
Log book for vehicles	Officers / STS /STLS
Petty and main cash books	Accountant / clerk
Accounts Ledgers	Accountant / clerk
DOTS Directory (regularly updated)	Data Entry Operator
Tour diaries	Supervisor
Reports	
Supervisory checklists	Supervisor
Monthly tour reports and advance tour programs	Supervisor
Quarterly reports	STO, STDC, DTO, MO-TC, STS & STLS
Monthly PHI-reports	MO-TC, MO, STS, STLS
Statement of Expenditure, audit reports, utilization certificates	Clerk / Accountant / Auditor / DTO / STO
Physical verification report	Verifying Officer
Internal Evaluation report	IE team

Determine once a year the number of tuberculosis forms and registers your district will need during the following year. Make sure there is an adequate supply of all tuberculosis forms and registers within your district.

This section of the module will review the purpose of each of the forms and registers and will describe how many you need to order.

The number of tuberculosis forms and registers needed is calculated as below:

During the first week of each year, calculate the number of forms and registers your district will need for that year. There are three steps required for this calculation:

1. **Determine the number of forms and registers your district will need for the year.**

   The number of Tuberculosis Treatment Cards needed depends on the number of patients treated for tuberculosis in the previous year. Use the four Quarterly Reports on New and Retreatment Cases for the previous year to determine the number of patients treated for tuberculosis. Multiply by 2 to allow for a duplicate card to be kept by the multi-purpose health worker.

   Approximately one Tuberculosis Register is needed each year for each sub-district. Approximately one Tuberculosis Laboratory Register is needed for each microscopy centre in the district each year. If some pages of these registers remain blank at the end of a year, it can be used the following year. However, begin from a new page every year.

   Approximately 15 copies of the Laboratory Form for Sputum Examination are needed for each pulmonary smear-positive tuberculosis case treated in the previous year: For diagnosis, approximately 10 Laboratory Forms for Sputum Examination are needed. (10 is the average number of symptomatics for each case of pulmonary smear-positive tuberculosis identified.)

   For follow-up up, approximately 3 Laboratory Forms for Sputum Examination are needed for each pulmonary smear-positive tuberculosis case, and 2 Laboratory Forms for Sputum Examination are needed for follow-up of each pulmonary smear-negative tuberculosis case.

   If you have access to a reference laboratory, a patient's sputum specimen can be sent for culture examination and if required, also to determine whether a patient is sensitive or resistant to an anti-tuberculosis drug. The Mycobacteriology Culture/Sensitivity Test Form contains a patient's culture and sensitivity results. Medical officers should send these through DTOs to C & S Laboratory with copy of Cat II treatment card. 2 forms should be filled up for each referral.

   Four copies of the Quarterly Reports are used each quarter. Keep one copy for the district, send one copy to the STO, one copy to STDC and send one copy to the Central TB Division. Since there are 4 quarters and 4 copies are used during each quarter, 16 copies of this report are needed each year.

Preferably, all these reports should be stored in electronic format at district and state levels. These should be sent to all concerned levels through email. You may avoid excess and wasteful use of paper. However, it should be noted that districts and states should have facilities for back-up of data in electronic format (CD-formats, etc) to avoid data loss due to virus attack and sabotage. The back-up materials should be kept under safe custody.

Tuberculosis Transfer Form is completed when a patient is transferred to a health facility in another district/sub-district.

Once a patient reports to a new district and is registered, the bottom portion of this form is mailed back (or sent by other means) to the referring health facility. When the referring health facility receives this portion of the form, they will know that the patient's treatment is being continued.

The number of Transfer Forms needed depends on the number of patients who were transferred to another district last year. Add the total numbers in the transferred to another district column for the four Quarterly Reports on the Results of Treatment for the previous year to determine the number of patients who were transferred to another district that year.

Three copies of the Tuberculosis Transfer Form are needed for every patient who is to be transferred to another district next year. One copy each is given to:

- The patient who is leaving, to hand over to the PHI where he reports for continuation of treatment
- The TB unit to which the patient is transferred
- Office copy, to be retained at the transferring unit

Therefore, if 10 patients were transferred to another district last year, 30 Tuberculosis Transfer Forms (10 patients x 3 copies per patient) would be needed for the following year.

The Annexures I and II list the laboratory materials, tuberculosis forms and registers a district needs for one year.

2. **Add an extra 20% of the number of forms needed to take care of the increase in tuberculosis cases or lost forms.**

   To account for the increase in tuberculosis cases and lost forms, add an extra 20% of the number of forms needed. You do not have to make this calculation for the Tuberculosis Register or the Tuberculosis Laboratory Register, because one of each register should be sufficient for one year. Each TU will register approximately

150 cases/lakh/year x 5 lakhs = 750 cases/year. At least 1000 patients can be registered in one register.

Initially, two registers are needed per TU so that there is no gap between the first and second year of service delivery. The Tuberculosis Laboratory Register allows for registration of at least 2000 patients. For each lakh, 75 smear-positive patients are projected, requiring the examination of 750 patients (thrice each). Additional follow-up examinations will bring the number of registers needed to approximately 1/lakh.

3. Account for the forms in stock.

On the last working day of the year, count the number of forms you have in stock. Then, during the first week of the new quarter, subtract the number of each form in stock from the total number of each form needed (Step 2).Use a table similar to the one below to determine the number of forms and registers to order.

Example:

In this example, the health facility treated 125 patients in the previous year

Form/Register	Number Needed	Add 20%	Subtract existing stock	Total number to order
Tuberculosis Treatment card	250	250+50=300	300-20 = 280	280

Order tuberculosis forms and registers

After you calculate the number of tuberculosis forms and registers needed, order the supplies.

Distribute tuberculosis forms and registers

After you receive the supply of tuberculosis forms and registers for the year, distribute the appropriate forms to the health units and the Tuberculosis Laboratory Register to the microscopy centre. Keep the excess supply which is not distributed to the facilities in the district to meet subsequent requirements of the health units during the year.

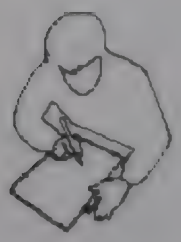
PRINTED MATERIALS

The districts should maintain an adequate supply of the following printed materials:

- Health Provider Guide – Local language
- MPW Module – Local language

- MO Modules 1-4, with exercise books
- Additional MOTC modules 5-9, with exercise books
- Facilitator's Guide
- RNTCP-At-A-Glance
- Desk Reference (A4, single page color)
- Modules for STS, STLS and LTs, with exercise books
- Laboratory Manual for Sputum Smear Microscopy
- Modules for training of Medical Practitioners (PPs/ Medical college faculty)
- Technical and Operational Guidelines
- RNTCP Laboratory Network guidelines for Quality Assurance of smear microscopy for diagnosing TB
- Strategy document on Supervision and Monitoring in RNTCP
- Guidelines for District TB Control Society
- Guideline for state TB Control Society
- Guidelines for involvement of NGOs and PPs
- Modules for HIV-TB Training
- Key Facts and Concepts
- RNTCP Brochure (blue cover)
- Guidelines for Practicing Physicians
- Guidelines for Medical Officers
- Other relevant document/guidelines as and where circulated out by CTD

These printed materials may be printed at state-levels to ensure quality at low cost.



EXERCISE 2

From the information provided about the Birbhum District, list the types and number of tuberculosis forms you need to order for this district to last throughout the next year.

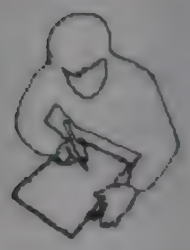
Case: Birbhum District

In 2003, in Bolpur TU of Birbhum District, there were 220 tuberculosis patients, of whom 100 were diagnosed as new pulmonary smear-positive cases. There are 5 microscopy centres in the sub-district. In this year, 8 patients from the sub-district were transferred to another sub-district. Approximately 10 culture/sensitivity examinations were done in the same year. At this time, you need to order tuberculosis forms and registers for 2004. The following number of tuberculosis forms and registers are available in the reserve stock:

50. Tuberculosis Treatment cards
35. Tuberculosis Identity Cards
82. Laboratory Form for Sputum Examination
15. Mycobacteriology Culture/Sensitivity Test Forms

10 Transfer Forms
6 Tuberculosis Laboratory Registers
3 Tuberculosis Registers

Tuberculosis Form/Register	Number required	Add 20%	Subtract Stock	Net number



EXERCISE 3

1. How many additional capsules of Rifampicin (150 mg) capsules would be required for a Category I patient weighing more than 60 kg?

2. What should be the reserve stock of drugs at the district level?

3. In Katurma District, 40 smear-positive cases were registered during the third quarter of year 2000. Calculate the total number of sputum containers needed for diagnosis.

4. What is the basis for calculation of drug stocks?

5. What are the estimated number of patients per lakh population per year, requiring Categories I, II, and III drugs in the RNTCP?

6. What is the purpose of maintaining reserve stock?

7. Describe an ideal drug storage area and site

VEHICLES AND OFFICE EQUIPMENT

Four-wheelers are provided or hired for supervision at district and sub-district levels. Accessories like helmets and side-boxes should be provided along with the motorbikes for STS/STLS. Logbooks should be maintained for these vehicles.

Bicycles are provided to TB Health Visitors for use in urban areas.

Districts also have provision to procure photocopier, computer (with accessories) and overhead projector.

The maintenance of these items can be done using funds available under the program. Expensive items like computers should be covered by annual maintenance contracts.

POINTS TO REMEMBER

- Uninterrupted supply of drugs and other materials is critical to the success of a TB control programme.
- Drug requirements are based on the number of cases, existing stocks, and reserve stocks.
- Maintenance of drug stock should be as per FEFO.
- Reserve drug stocks should be available for 3 months at DTC, 2 months at TU, and 1 month at PHI level.
- Reserve stocks are required to account for unexpected increase in TB case load, delays in procurement and distribution of drugs, improper distribution of drugs, and drugs stolen or lost due to improper storage.

ANNEXURE 1: APPROXIMATE LABORATORY REQUIREMENT FOR 3000 SLIDES FOR SPUTUM SMEAR MICROSCOPY

Reagents/ Equipment for staining	Quantity
Binocular microscope with 10x, 40x and oil immersion objective (100x) eyepieces (10x) and spare bulbs and fuses	Atleast 1 per DMC
Plastic disposable sputum containers	3,300
Slides for microscope, 25*75 mm, 1.1 mm-1.3 mm thick	3,300
Broom stick 10 cms length	3,300
Diamond marker pencil	1 number
Timer, 30 or 60 minutes	1 number
Forceps, Chitel forceps stainless steel for slides 15 cm	1 number
Scissors, 25 cm stainless steel	1 number
Slide rack, Staining slide rod of metal or plastic or glass for 12 slides	2 numbers
Slide boxes, For 100 slides	33 boxes + 1-2 per DMC for RBRC
Toilet tissues, Tissue rolls	4 numbers
Grease marking pencil	12 numbers
Absorbent cotton, 500 gms/ roll	4 numbers (2 k.g)
Pressure cooker, For disposal by autoclaving	Optional
5% phenol	600 litres
Methylated spirit	3 liters
Aprons	2
Disposable gloves, 6 and 8 inches (box of 25 pairs)	12 boxes
Spirit lamp,	1 number
Metal wire, For swab for heating of Carbol fuchsin	1 number
Sputum specimen transport box, Insulated box, made of plastic 10" x 10" x 10", thickness 1" with lid, handle and nylon belt 1" width 2.5 feet length, nylon strap of 1" width 2 feet length with Velcro to strap the lid of the box from side to side.	2 numbers

For preparation of reagents at DTC/TU

Reagents/ Equipment for staining	Quality
Basic fuchsin, Pararosaniline hydrochloride, C_{19} H_{18} N_3 Cl, molecular wt: 323.8, Colour: Metallic green, Dye content: Should be available on the container. Approximately 85%-88%	300 Gms
Carbolic acid (Phenol), C_6H_5OH, and molecular wt: 94.11, Melting point: 40^0C, Solidification point: 40.5^0C, Purity: 99.5%	2 ltrs
Sulphuric acid: H_2SO_4, molecular wt: 98.08, Purity: 95-97%, Colour: Clear	10 ltrs
Methylene blue, (Methylthionine chloride), $C_{16}H_{18}ClN_3S$, molecular Wt: 319.9 Dye content: Should be available on the container. Approximately 82%	32 Gms
Alcohol (absolute)	3.2 ltrs
Funnel, 7" dia 7" height and 5" stem height	4 nos.
Funnel, 3" dia 4" height and 5" stem height	4 nos.
Drop bottles, Glass/ plastic 100 ml capacity	8 nos.
Bottles for storage of stock solutions, Brown bottles 2 litre capacity	4 nos.
Flat bottom round flask, Capacity 3 litres of pyrex of glass	5 nos.
Wash bottle, Plastic 500 ml	6 nos.
Drop plastic bottle for immersion oil, 10 ml capacity	2 nos.
Disposable bucket, Plastic foot operated 12 liters	2 nos.
Measuring cylinder, 1000 ml capacity plastic or glass	4 nos.
Measuring cylinder, 100 ml capacity plastic or glass	4 nos.
Water tanks, Plastic with tap, 100 liters where there is no running water facility.	1 no
Filter paper, Whatman no. 1 packs of 100 2" * 2"	1 box
Adhesive labels for sputum containers	6 rools
Soap, soap box towel and clean rags as needed	As per requirement
Aluminum vessel, for the purpose of carbol fuchsin solution preparation 16" diameter 9" height	1 no.
Water bath, for the preparation of carbol fuchsin	1
Beaker, 250 ml with spout	1 no.
Display board	1 no.
Distilled water (instead of distillation apparatus)	35 liters
Stove wick type/ Bunsen burner with butane gas cylinder/ burner with gas cylinder	1

Laboratory reports and records

Laboratory form for sputum examination	2200
Tuberculosis laboratory register	2

ANNEXURE II: NUMBER OF TUBERCULOSIS FORMS AND REGISTERS NEEDED IN THE RNTCP

Names of tuberculosis forms and registers	Number needed
Tuberculosis Treatment Card	2 per patient
Tuberculosis Identity Card	1 per patient
Tuberculosis Register	1 per year per TU
Tuberculosis Laboratory Register	1 per year per microscopy Centre
Laboratory Form for Sputum Examination	15 per new pulmonary smear-positive case
Mycobacteriology Culture/Sensitivity Test Form	Number determined by State tuberculosis Officer
Quarterly Report on New and Retreatment Cases of Tuberculosis	16 per year (4 copies x 4 quarters) for each TB Unit and for DTC
Quarterly Report of Sputum Conversion of New Cases, Relapses and Failures	16 per year (4 copies x 4 quarters) for each TB Unit and for DTC
Quarterly Report on the Results of Treatment of Tuberculosis Patients Registered 12–15 Months Earlier	16 per year (4 copies x 4 quarters) for each TB unit and for DTC
Quarterly Report on Programme Management and Logistics	PHI: (3 copies x 12 months) x No. PHIs in district Sub-districts: (2 copies x 4 quarters) x No. TUs in District District: (4 copies x 4 quarters) copies
Tuberculosis Transfer Form	Based on proportion of patients who were transferred out of the district during the preceding year. Estimate 1 for 20 patients.
Supervisory register	As per No. of PHIs
"Referral for treatment" forms	As per requirement
Referral for treatment register	1 each for Medical College, big Hospital, etc.

Module 9:

Implementing the Programme

Contents

MODULE 9: IMPLEMENTING THE PROGRAMME

9.1. INTERNAL EVALUATION

Intensive supervision and monitoring at all levels is critical to the success of the RNTCP. The state level Internal Evaluation (IE) is a tool for comprehensive review of the district with the purpose of giving specific recommendation to improve the programme performance. The objectives of IE of the districts by the state are as follows:

1. To validate the cure rates of the district for the last reported quarter;

2. To assess the programme performance as well as financial and logistics management;

3. To give recommendations for improving the quality of recording and reporting and

4. To give recommendations for improving the performance (with a time line)

The state TB officer has the overall responsibility of coordinating the IE. The members of the IE team comprise of the various state level and local district level Officials. The DTOs of neighbouring district are also invited to be a part of the team as this facilitates the exchange of experiences. Similarly members from the local medical colleges can be invited to participate in the IE team.

The States are expected each quarter to select two districts for internal evaluation, based on the latest quarterly reports. Ideally the districts selected should be one well performing district and one poorly performing district. In states where there are less than 4 districts implementing RNTCP, then 1 district per quarter may be evaluated and alternating the selection of district in each quarter, the STO is expected to send the names of the districts planned for IE, along with the proposed dates of the evaluation to the Central TB Division.

The detailed IE protocol has been circulated to all the states. In brief, the focus is on interviewing patients, the district TB officer and his/her team, to identify issues, which need improvement, and collectively to recommend the course of corrective action(s).

RNTCP Designated Microscopy Centres and DOT Centres are selected depending on certain criteria given in the protocol. Subsequently a number of patients, mainly those who are new sputum smear-positive pulmonary TB cases, are visited and interviewed. Patients are interviewed regarding the diagnostics and treatment services, and the records in the RNTCP TB lab register, treatment cards and TB register are checked for certain patients. To make the exercise objective, standardized form have been developed for the recording of the patient interviews and the cross checking of the records.

The IE team, under the leadership of the STO, at the evaluation provides a detailed feedback to the DTO and the district authorities, and sends a copy of their IE report to the Central TB Division.

Additional information can be elicited by discussion with DTO, Medical Officers and other supervisory staff of the district as well as observation of DMCs and DOT-Centres in the districts.

9.2. EXPECTED INCIDENCE AND CASE DETECTION

It has been estimated that for every one percent annual risk of infection, there are about 50 new smear-positive (NSP) cases per 100,000 population per year. The average ARTI in the country as a whole was computed as 1.5%. Therefore, the average incidence of new smear-positive cases in the country as a whole is estimated at 75 per 100,000 population per year. Henceforth, this estimate will be used for the calculation of the national case detection rate.

The zonal estimates of incidence derived from the nation-wide annual risk of infection survey in 2000-03 would be used for the calculation of the case detection rate (CDR) of States within the respective zones (refer to suggested readings given below). The revised estimates of incidence of new smear-positive cases to be henceforth used for calculating the case detection rates in different States/Union Territories are given in the table below. However, there may be pockets of higher incidence within individual states/zones, especially in highly populated areas such as urban slums.

Zone	States/Union Territories	Estimated NSP cases per lakh population
North	Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Uttar Pradesh, Chandigarh, Delhi, Uttaranchal	95
East*	Assam, Bihar, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, West Bengal, Andaman & Nicobar, Arunachal Pradesh, Jharkhand	75
South*	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Pondicherry, Lakshadweep	75
West	Goa, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Dadra & Nagar Haveli, Daman & Diu, Chhattisgarh	80
State specific	Orissa	85

*Even though, the estimated ARTI rates are lower in south and east zones, the expected incidence of new smear-positive cases for these two zones have been fixed on par with the national estimate.

Suggested Readings:

Chadha VK, Preetish Vaidyanathan, Jagannatha PS, Unnikrishnan KP & Mini PA "Annual risk of tuberculosis infection in North Zone of India" Bull World Health Organ 2003, 81, 573-81.

Chadha VK, Preetish Vaidyanathan, Jagannatha PS, Unnikrishnan KP, Shashidhar J Savanur & Mini PA "Annual risk of tuberculosis infection in the Western Zone of India" Int J Tuberc Lung Dis 2003, 7, 536-542.

C.Kolappan, P.G.Gopi, R.Subramani, V.K.Chadha, Prahlad Kumar, V.Venkatesh Prasad, et. al. Estimation of Annual Risk of Tuberculosis Infection (ARTI) among children aged 1-9 years in the South Zone of India. Int J Tuberc Lung Dis 2004; 8:418-423.

V.K Chadha, P. Kumar, Joydev Gupta, P.S. Jagannatha, Lakshminarayana, V Magesh, Jameel Ahmed et. al. Ahmed et. al. Annual risk of tuberculous infection in the eastern zone of India. Int J Tuberc Lung Dis 2004; 8:537-544.

Government of India. Annual risk of tuberculosis infection in different zones of India. A national sample survey, 2000-2003 Bangalore: National TB Institute, 2004.

9.3. DISTRICT ACTION PLAN

For smooth running of the programme, planning is important. The DTO should have enough stock (of drugs and other materials) as well as funds to achieve the programme objectives.

For this, the DTO should do a SWOT analysis of the programme and prepare an annual report-cum-plan that may include the following:

1. Goal and objectives of the program in the district
2. Strengths and weaknesses of the program in the district (internal factors)
3. Opportunities and threats that exist in the district for the program (external factors)
4. Action plans and budgetary requirements for the next financial year

Strengths, **W**eaknesses, **O**pportunities and **T**hreats are described in the section on "Leadership and Management Skills", below. Performance indicators and trends observed in the past 4 quarters should be used for the SWOT analysis.

Actions plans and budgetary requirements: In order to take the corrective steps and to achieve the desired level of performance, the DTO would have to plan activities, timeframe and finance for the next financial year. The budget in the "District Annual Action Plan" is

thus based on the improvement desired in the performance indicators and activities planned to achieve the same.

The format of action plans and budgetary requirements includes:

1. Assessment of the current performance of RNTCP in the district
2. Determination of a feasible level of performance for the coming year
3. Determination of priority areas for achieving step 2
4. Determination of activities under each priority area

Society meetings (DTCS and STCS) should be called at least twice a year. The action plans and budgets required for each activity should be presented and approved collectively. In addition to assisting in logical planning, this would also save time as the member secretary will not have to seek approval for each individual activity.

District Annual Action Plans are then compiled at the state level to make the State Annual Action Plan and sent to Central TB Division, which then releases lump-sum amount twice a year to the STCS for onward distribution to DTCS as per their action plans.

Another important requirement for timely release of funds from Central TB Division is timely submission of Utilization Certificates, Statement of Expenditures and Audit reports.

9.4 QUALITY TRAINING

The RNTCP involves many activities, such as case-finding by sputum smear microscopy, directly observed treatment with standardized short-course chemotherapy, use of an improved recording and reporting system, etc. High quality training is critical to the successful implementation of RNTCP.

It is imperative to conduct quality training of all levels of personnel who have TB-related responsibilities. It is important that the initial training of district personnel is done just prior to launching of RNTCP service delivery. Ensure that, by careful planning, all types of personnel who are to perform TB-related activities are adequately trained prior to implementation of RNTCP. The entire training process should be closely monitored by the District Tuberculosis Officer (DTO)/ Medical Officer (MO), even if s/he is not directly responsible for each step.

Develop a schedule for training

The personnel at each level support and supervise the level directly below them. Generally, staff at the state level should be trained before the staff at the district level, and the staff at the district level should be trained before the staff at the sub-district and peripheral levels. To help ensure that the appropriate persons are trained at the correct

time, develop a training schedule for the staff of the health services and one for the staff of the laboratory services.

When developing a schedule, determine:

- the date the training materials will be prepared;
- the order in which personnel will be trained;
- the duration of the training period for each group;
- the number of people that can be trained at one time (and hence the number of 'batches' needed for training each category of personnel); and
- estimate the number of each type of personnel (e.g. state, district) to be trained for each quarter of the year.

Train the staff of the health services at the state, district, sub-district, health unit and peripheral levels before they implement the RNTCP.

Use the staff from successful districts to train the staff for new districts. All successful districts should be also utilized as field demonstration areas. All classroom teaching should be demonstrated at these field sites.

A successful district can conduct practical training for staff from one new district (or possibly two districts) at a time. Through observation and on-the-job training, the staff can learn how to treat patients using DOT and use the new recording and reporting system.

Ensure that laboratory personnel at the state and district levels receive training of the highest standard.

The tables below will assist you in the preparation of a training schedule.

Initial RNTCP training

Category	Duration (working days)	Batch size	Training Material	Venue
STO/STDC staff/District TB Officer/ TB-HIV co-ordinator	14	20	RNTCP MO Modules 1-9, STCS/ DTCS guidelines, Financial Management manual, Procurement + SDS Manual, Monitoring strategy	Central Institute
MO-TC/ Urban TB co-ordinator	12	20	RNTCP MO Modules 1-9	STDC
MO	5	20	RNTCP MO Modules 1-4	District
STS (2+6)	8	12	MPW Module, then STS Module	STDC
STLS (10+5)	15	6	LT Module, then STLS Module	STDC
LT	10	8	LT Module	District
State Drug Store Staff /Pharmacist in RNTCP	2	25	MPW Module/ Manual on Std. Operating Procedures for State Drug Store	District/TU
MPHS	3	25	MPW Module, sections of STS Module	District/TU
TB Health Visitor etc.	2	25	MPW Module	TU/PHI
MPW/HA etc.	2	25	MPW Module	TU/PHI
Anganwadi Worker/ Midwives/ Community Volunteers, etc.	2	25	DOT Provider Module	TU/PHI
Community based DOT providers	1	25	DOT Provider Module	TU/PHI
Private/NGO/ other sector Medical Practitioners (for PPM module)	6 hrs	20	Training Module for Medical Practitioners	DTC/IMA
TO / SA	6	12	STS Module	STDC/District
IEC Officer	6	Need based	IEC Module + MPW module	Central level
Data entry operator	2+2	12	MPW module, then Epicentre training	MPW module & Epicentre at state level
Accountants for district	1	Need based	Manual on Financial Management and Guidelines	State level
Accountant – state level	3	Need based	Manual on Financial Management and Guidelines, DTCS/ STCS guidelines	Central TB Division

Initial Training on EQA

Category	Duration (days)	Batch Size	Training Material	Venue
EQA (Master Trainers/ Microbiologist)	5	10	EQA Manual	Central Institute
EQA IRL LTs	5	6	EQA Manual	Central Institute
EQA STDC Dir/ STO	2	15	EQA Manual	Central Institute
EQA DTO/MOTC	2	25	Sections from EQA Manual	State Level
EQA STLS	2	6	Sections from EQA Manual	District Level
EQA LTs	1	25	Sections from EQA Manual	District Level

Initial RNTCP training on TB/HIV

Category	Duration (days)	Batch Size	Training Material	Venue
TB-HIV Master Trainers	5	10	TB HIV Modules	State level
STO/ DTO/ MO-DTC/ MOTC	2	10	Module for MOs on TB/HIV	State level
MO	1	30	Module for MOs on TB/HIV	District
STS/STLS	2	10	Module for STS STLS on TB/HIV	District
DOT Provider	1	30	Module for Health Workers on TB/HIV	TU/PHI

Initial RNTCP training for Medical College staff

Category of staff to be trained	Type of training	Place of training	Trainers	Training material	Duration (in days)
Medical Staff					
STF Chairperson	Concise modular	National institute	Central institute staff	RNTCP –Key facts and concepts	1*
Faculty in charge of RNTCP	MO-TC modular	State-level	STC/STDC staff	1-9 modules	12
TOT's	MO-TC modular	National/ State-level	Central Institute/ STC/STDC staff	1-9 modules	12
HODs and Senior staff	Concise modular	State-level	STC/STDC staff	RNTCP –Key facts and concepts	1
Other faculty members (interested)	MO modules	Medical college	Faculty in charge of RNTCP	1-4 modules	5
PG students/ Residents/ Interns /UG's	Part of Curriculum + Sensitization	Medical College	Faculty in charge of RNTCP	Curriculum	2-3 hrs**

Paramedical staff					
Nurses	MPW training	Medical College	Faculty in charge of RNTCP	MPW module	2
Pharmacists	MPW training	Medical College	Faculty in charge of RNTCP	MPW module	2
Other paramedical staff	MPW training	Medical College	Faculty in charge of RNTCP	MPW module	2

* 5 days or 12 days modular training for those interested

** Consists of theory classes. Practical training will be imparted during posting to the Chest or Medicine Departments and the DOTS Cell.

Plan to undertake periodic training and retraining

Remember that staff turnover may be high

Select course facilitators

Classroom training, especially skill-based training, requires effective facilitators to manage, motivate and evaluate course participants.

Practical training requires staff who have actual experience with RNTCP implementation, including recording and reporting of activities.

You are responsible for selecting the facilitators for the classroom training. Choose facilitators who have the ability to:

- lead group discussions;
- encourage active participation;
- listen to others without interrupting;
- respond directly to questions and/or concerns; and
- provide constructive feedback during training.

During the training of state and district level staff, begin to identify people who can be facilitators for future training courses. Personnel from the general health services, general laboratory services, and experts in TB from other institutions in the country (e.g. medical or nursing schools) may all be good candidates for being facilitators.

Facilitators must be knowledgeable about the skills course participants will learn and the exercises that they will complete during training. Therefore, ensure that all course facilitators participate as learners in the training course(s) they will facilitate.

Plan a train-the trainer course (facilitator training). During facilitator training, each future facilitator should complete the module(s) he or she will facilitate. They should read all participant materials and complete all exercises (e.g. role plays, individual exercises). After the future trainers complete the facilitator training, encourage them to think about areas that participants may find difficult and plan ways to help make it easier. Also ask them to identify ways to answer potential questions and concerns. You can invite future facilitators to co-facilitate a training course with an experienced facilitator.

EXERCISE 1

For this exercise, you will work with a colleague to discuss potential problems in planning course logistics and obtaining resources for training.

Instructions

1. Find a colleague.
2. Discuss potential problems in planning course requirements and obtaining resources for the course. Record your responses on the table below.
3. Identify ways to reduce or eliminate the problems.

Potential problems	Possible causes	Possible solutions

When you have completed the exercise, continue reading the module.

Calculate the costs of training

The cost of training is included in the budget for implementing the RNTCP in the respective state or district. All costs associated with training at the different levels of the RNTCP need to be planned and budgeted for.

These costs include:

- per diem for participants and facilitators;
- travel expenses for participants and facilitators;

- printing cost for training materials;
- stationary;
- fee for using a training facility; and
- refreshments.

Implement the training plan

After the required funds are received for implementing the training plan of the RNTCP, you will need to:

- train the state personnel, including STDC laboratory technicians;
- ensure that the district personnel, including laboratory technicians, are trained; and
- ensure training of personnel of the health units at the sub-district and peripheral levels.

Make sure that the appropriate persons are trained at each phase of implementing the RTNCP.

Supervise and evaluate training quality and needs

To assess quality of training and training needs at all levels, visit district health units and peripheral levels of health services and observe that staff performing the RNTCP related activities for which they are responsible for and have been trained on.

Prepare supervisory schedules and checklists. The person who conducts supervisory visits should ensure that the health workers are performing their job adequately. S/he should observe personnel at work, review records and forms for completion and accuracy, and speak to the staff about their job responsibilities, case-finding, treatment outcomes, etc.

Supervisory visits provide an opportunity to evaluate the training programme and to identify staff who need to build additional skills, or who have other training needs. If staff members are not performing their jobs appropriately, determine if they were initially properly trained to do so.

The supervisor should also interact with community leaders and with patients, to assess their perception of the programme and to discuss with them the means for improving the services and community support.

A staff member may not be adequately performing his/her job because of a lack of skills or knowledge. The person evaluating the performance must determine the specific skill or knowledge in which the person is deficient. S/he should recommend and ensure that the staff member is retrained.

Retraining schedules

Category	Maximum duration (days)	Venue
STO/STDC	5	Central Institute
DTO/ MO-TC	3	STDC
STS	2	STDC
STLS	3	STDC
LT	2	District
MO/TO/ SA/ IEC Officer	2	District
Pharmacist/ Staff Drug Management (State/ District/ TU)	1	District/TU
MPHS	1	District/TU
TB Health Visitor etc.	1	TU/PHI
MPW/HA etc.	1	TU/PHI
Anganwadi Worker/ Midwives/ Community Volunteers, etc	1	TU/PHI
Community based DOT providers	1	TU/PHI
Accountant	1	State/District
EQA (Master Trs./ Microbiologist)	2	Central Institute
EQA-IRL LT	2	Central Institute
EQA (STDC Dir/ STO)	1	Central Institute
EQA (DTO/MOTC)	1	STDC
EQA (STLS)	1	District
TB-HIV(DTO/ MOTC)	1	STDC
TB-HIV (MO)	1	District
TB-HIV (STS/STLS)	1	District

It is imperative that you ensure that the highest quality of training is undertaken by RNTCP. This is the first step towards achieving technical excellence and success of the programme.

9.5. IMPLEMENTING INFORMATION EDUCATION AND COMMUNICATION (IEC) ACTIVITES

IEC is an important tool of community health. It involves the transmission of health information to the people in matters of health and disease so that they live healthier lives. The objective of IEC is not only to inform people but also to motivate and guide them into action. In order to plan and implement an IEC strategy, it is important to know the level of understanding of the people for whom IEC is directed and their attitudes and beliefs. It is also essential to focus on the felt needs of the people, which will also ensure participation of people in the process of IEC. Messages should be tailor made for the respective target audience. The choice of the medium is an important factor in the effectiveness of

communication. The mix of media options has to be carefully selected bearing in mind their ability to deliver the message, cost and availability.

TB is a major public health problem in India. The stigma associated with the disease precludes many from seeking medical help. The patients tend to discontinue treatment after sensing a feeling of well being. There is over reliance on X-ray for diagnosis especially in the private sector and unsupervised treatment is offered with non - standardized regimens.

In order to control TB, there is need for dissemination of information about tuberculosis (signs and symptoms), its cause, detection and treatment thereby empowering individuals, families and communities to be responsible for behavioral change to achieve cure of people suffering from tuberculosis.

An IEC strategy is a systematic set of communication activities designed and implemented to achieve specific objectives among an intended audience within a defined period of time.

Basic elements of IEC include:

- Target groups
- Messages to be disseminated
- Channels / media options for dissemination of the messages
- Monitoring, supervision and evaluation

The main target groups for IEC in TB control are:

- TB patients and their families
- General public
- Health Care Providers
- Opinion leaders / administrators /policy makers

Key messages and media options according to the target groups

Target group	Objectives	Key messages	Media options
Patient and their families	1. To increase awareness about presenting symptoms of tuberculosis. 2. Empowering them to seek treatment 3. To ensure adherence to treatment.	▪ Cough of more than 3 weeks duration could be due to TB. ▪ Contact nearest health center for sputum examination ▪ Sputum examination is more reliable for diagnosing TB. ▪ Free good quality drugs are available at health centers	▪ Interpersonal communication ▪ Patient provider interaction meetings (group meetings) ▪ Outdoor publicity (Hoardings, wall paintings, posters, bus panels, banners etc.)
General public	1. To increase awareness about presenting symptoms of tuberculosis. 2. To inform about the availability of free diagnostic and treatment services 3. To inform about the curability of TB and reduce stigma.	▪ TB is fully curable with 6-8 months of anti TB treatment. ▪ Drugs should be taken in the presence of a health worker/volunteer	▪ Community level meetings eg., Mahila Mandals, Panchayat meetings, youth clubs. ▪ Outdoor publicity ▪ Out reach activities (Street plays, folk media, street theatre, haats, melas and festivals) ▪ Mass media (electronic media)

Health Care Providers (Public and private)	1. To underline the reliability of sputum examination for diagnosis 2. To convince about the role of Direct Observation of Treatment. 3. To inform about location of RNTCP microscopy and DOTS centers.	▪ Sputum smear microscopy is the most reliable tool for diagnosing pulmonary TB ▪ Only standardized regimen as prescribed under RNTCP should be prescribed. ▪ Treatment should be given under Direct Observation to ensure cure and prevent drug resistance.	▪ Sensitization meetings ▪ CMEs/Seminars ▪ News paper/journals ▪ Information booklets ▪ Direct mailers ▪ Electronic media
Opinion leaders/ administrators	1. To ensure commitment for TB control programme 2. To mobilize resources	▪ Magnitude of the problem eg., more adults die of TB than any other infectious disease; majority of TB cases occur in productive age group leading to social and economic consequences. ▪ Only DOTS can achieve high cure rates	▪ One to one meetings ▪ Sensitization meetings ▪ News papers/print media ▪ Brochures ▪ Electronic media ▪

IEC action plan

IEC action plan should be an integral part of the annual district action plan for RNTCP. The State Tuberculosis Officer (STO) is responsible for planning, coordinating, monitoring and implementation of all IEC activities. The generic IEC material should be developed in close collaboration with the district and peripheral TB staff and IEC officers.

The district TB control society is responsible for planning, implementing and monitoring the IEC activities at the district level, with DTO being the responsible Officer including involvement of other organizations like Panchayat Raj Institutions (PRI), NGOs etc.

All staff at primary health institutions should be trained in IPC skills. IEC material should be easily available, prominently displayed and used on a regular basis. The 'cured persons' should be utilized for IEC activities.

The essential prerequisite before implementing IEC activities is that necessary infrastructure for sputum tests and DOTS is in place and drug availability is ensured.

Components of IEC Strategy

Different kinds of IEC interventions are required to cater to different target groups and for different purposes. The following are basic components of IEC strategy:

a. Preparation of IEC action plan

b. Development of IEC material and its pre-testing

c. Implementation of IEC activities as per the action plan

d. Monitoring, supervision and evaluation

a. Preparation of action plan

IEC activities are undertaken to increase case detection, create patient friendly environment, ensure patient adherence, co-opt other partners, mobilize resources and support from stake holders.

Action plan for IEC includes identification of activities to be carried out for different target groups, calendar of activities, and indicating responsibilities (who will do what). The action plan has to be prepared keeping in mind the various components of IEC strategy and the budgetary allocations. The following table may be used as a guide for preparing the action plan.

Guide for preparing the action plan

Activities		**Person responsible**	**Suggested No. of activities**	**Budget required**
Interaction meetings	Patient-provider interaction meetings*	MO/STS/ANM/DOT provider	1/DOT centre quarter	Cost per meeting X No. of meetings
	Community meetings- Mahila mandal/self help groups/youth clubs/ PRIs	STS/ANM/DOT provider	1/TU/month	
	School activities-quiz/ rallies/ poster competition	MOTC/School health officer/DEO/ AEO	1/TU/quarter	
	Sensitization meetings/ Seminars/Workshops/ CMEs**	STO/DTO/IEC officer/MOTC	1/district/quarter	
Out doors	Wall paintings/ hoardings/tin plates/ bus panels	STO/DTO/IEC officer	1 wall painting / DOT centre 3-4 hoardings / district	Cost per unit X No. of units
Folk media	Puppet shows/ Street plays/ Haatts/Melas/ Festivals /Mike Publicity	MOTC, local NGO	1/TU/quarter	
Print media	Posters/ /pamphlets/flip -charts/ News paper insertions/ information booklets/ Brochures	STO/DTO	4-5 posters / DOT centre	
Electronic media	Radio talks/ Cinema Slides/ Cable publicity	STO/DTO	Depending on feasibility	
World TB day activities	Mass rallies/meeting of cured patients	DTO/MOTCs/MO/STS/IEC officer	Annual basis	
Any other activity				

* 8-10 patients per meeting
** About 20 participants per meeting

The calendar of proposed activities should be prepared for implementing IEC activities and for easy monitoring.

b. Development of material for IEC and pre-testing

Production and development of IEC material should focus on identification of material to be developed and its usefulness while being cost effective. However, mere production of material should not be considered as organization of IEC activities. All material developed should be pre-tested before its bulk production. It is economical to develop material at state level with the help of a professional agency. State and district should work in close collaboration for developing new material for different target audience. For example, posters should be developed keeping in mind the target group, messages, place of use and quality of material. Small quantities of IEC material used more frequently are desirable than production of bulk material, which is rarely used.

Material developed should contain few key messages, readable and placed at important locations. The text and images should take into consideration the local cultural context and the language. For example, poster should have 1-3 key messages and should be of good quality so that it is used for a longer period of time. In the same way, leaflets or pamphlets should have few clear messages and few images. The cluttering of messages by putting too much of text should be avoided.

For types of material to be produced for different target groups, refer to the table above.

c. Implement IEC activities as per the action plan

IEC activities should be implemented as per the action plan. Responsibilities should be fixed at district and sub-district level for organization of these activities. DTO and MO-TCs are to ensure that the activities take place as per action plan. The help and cooperation from district education officer/block extension educator/media officer and IEC officer at the state level may be sought for organization of activities.

d. Monitoring, supervision and evaluation

Regular monitoring and supervision of IEC activities should form a part of routine supervisory visits. The feedback from the field is critical for modification/fine tuning of IEC activities. Regular monitoring and periodic reviews should be conducted to assess the value and utility of campaign. The following format may be used for supervision of IEC activities.

Activities (As per action plan)	Number planned for the previous quarter/year	Number undertaken
1.		
2.		
3.		
4.		

Periodic evaluation should be conducted by an independent agency to evaluate the IEC programme and activities undertaken.

9.6. MANAGERIAL ISSUES (LEADERSHIP, MANAGEMENT SKILLS, HOLDING MEETINGS ADVOCACY)

i. What is leadership?

Leadership can be simply defined as the act of making impact on others in a desired direction.

ii. Who is a leader?

A leader is a person who plans, organizes, makes decisions, and influences people. He trains people, co-ordinates their work, and motivates them for work. He has positive attitude towards people and their work. He points the direction and others follow. In short, effective leaders are supportive, self confident, and positive. They are pathfinders, more divergent in their thinking and have futuristic vision.

iii. Leadership Styles

There are four basic leader styles:

Style 1. **Directing** (High Directive/Low Supportive Behaviour-S1): the leader provides specific instructions and closely supervises task accomplishment.

Style 2. **Coaching** (High Directive/High Supportive Behaviour-S2): the leader continues to direct and closely supervise task accomplishment, but also explains decisions, solicits suggestions, and supports progress.

Style 3. **Supporting** (High Supportive / Low Directive Behaviour-S3): The leader facilitates and supports subordinates' efforts towards task accomplishment and shares responsibility for decision making.

Style 4. **Delegating** (Low Supportive /Low Directive Behaviour-S4): The leader turns over responsibility for decision- making and problem- solving to subordinates.

The **Four Basic Leadership Styles**

(High) Supportive Behaviour	High supportive Low Directive Behaviour S-3	High Directive High supportive Behaviour S-2
(Low)	Low supportive Low Directive Behaviour S-4	High Directive Low supportive Behaviour S-1
	(Low)	(High)

Directive Behaviour

The style of leadership would depend on the maturity and experience level of the subordinate.

iv. Situational Leadership:

There is no universally best way to influence others. Therefore, change in style depending on the situation and the person with whom the officer is working, is the most appropriate leadership style. This is popularly called as **"Situational leadership"**.

v. Differences between a Manager and a Leader

Manager:

The major responsibility of a manager is to operate and maintain the organization efficiently ensuring that it provides useful services to clients or community. A manager tend to be a problem solver, seeks better ways to deploy the resources to get the job done.

Leader:

A leader, on the other hand, is a pathfinder; he is more divergent in his thinking and concerned with building the organization for future. In short, a leader provides direction, secures new resources, develops new capacities; carries the organization to take advantage of emerging opportunities.

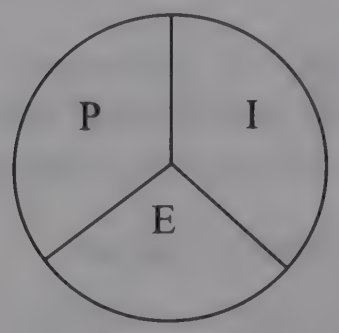
Leader and Manager Roles

S.N.	LEADER	MANAGER
1	Visionary	Planner, Organizer
2	Strategist	Controller
3	Politician/ Advocate	Supervisor
4	Campaigner	Monitor
5	Team Builder	Efficient User of resources
6	Change agent	Status quo

vi. The management functions- can be classified in three broad categories:

(i) Planning, (ii) implementation, and (iii) evaluation.

Management Functions



Planning

CHECKLIST SENT TO STATES

The planning consists of:

1. Stating the goal of the program/organization
2. SWOT analysis (analysis of strengths, weaknesses, opportunities and threats) in terms of:

- Availability of health infrastructure and resources
- Socio-cultural-economic profile of community, geographical terrain, provision for additional inputs in programme, etc
- Performance of the program (especially trends)

SWOT Analysis

	Positive	**Negative**
Internal	Strengths	Weaknesses
External	Opportunities	Threat

3. Setting objectives (learning, adopting, practicing and maintaining good quality services in the district/state in accordance to program guidelines).

4. Setting activity plan (developing annual budget and expenditure plan, demanding/receiving funds from CTD/STCS, planning for HRD, obtaining drugs and other materials, developing implementation strategy, etc)

5. Deciding and setting indicators for evaluation (achieving more than 85% cure rate of new sputum positive cases and, thereafter, at least 70% case detection of the same)

Implementation

Implementation function of management deals with day-to-day decisions about carrying out the planned activities, in a timely and phased manner. This includes the following:

- Ensuring that all activities are performed as planned
- Deployment of manpower in right number, at right time, and at right place
- Allocation of financial and physical resources
- Specifying input and outcome indicators
- Applying specified activity records and report forms
- Providing technical support for enhancing capacity building,
- Supervision and Monitoring
- Specifying and applying ways of removing conflicts, etc

Evaluation

The evaluation function of the management includes finding the degree of effectiveness and efficiency with which the plan has been implemented. In general, the evaluation is undertaken to find out:

- Degree of achievement as against stated objectives, and
- The factors influencing the achievements.

The purpose of evaluation is to influence decision-making for improving programme effectiveness in future. The feedback, therefore, is an essential and integral component of evaluation.

vii. Team building and team work

As a Programme manager, it is the prime duty of the DTO/STO to develop effective teams within the programme that strive towards achieving the programme goal.

Definition: A team is defined as a group of people working for a common purpose and goal.

Essential elements of a team:

(a) Common goal

(b) Interdependence

(c) Commitment

(d) Accountability

Essential elements of a Team Builder / Team Leader:

- Establish clear aims and communicate concepts that team members can grasp
- Start the process modestly, realizing that big oaks also grow from little acorn. Success builds confidence and brings further success.
- Consult widely and genuinely to develop organizational (program) acceptance by ensuring higher understanding in the team members. Thus, relate team building to organizational work.
- Encourage openness and frankness but it should be functional.
- Do not raise false expectations, since broken promises discredit.
- Always learn to delegate, since delegation usually leads to development.
- Build contacts with other teams.
- Practice what you preach, since actions speak louder than words.
- Take responsibilities for your actions.
- Learn from mistakes, and admit when you are wrong, review progress regularly, and encourage feedback.
- Remember that honest feedback is the most valuable thing your colleagues/ team members can give you.
- Build realistic time schedule.
- Remember jealousy can develop among those who are not part of action; since, people always like to be part of action.

- Always remember, you can lead a horse to water, but you cannot make it to drink. Hence,
  - People cannot be forced to change.
  - People cannot be forced to be open and frank.
  - People cannot be forced to be honest.

Barriers to Effective Team Functioning:

- Obsession for satisfying individual needs rather than the achievement of team goals
- Unnecessary competition among team members
- Distrust and lack of concern for other team members
- Avoidance behavior

Overcoming Blockages:

- Clear objectives and agreed goals
- Openness and functional discussion
- Support and trust
- Sound procedures
- Regular review and feedback
- Strong interpersonal relationship

viii. Motivation for Action/ Work:

Motivation refers to the willingness of an individual's efforts to perform any activity with the expectation of obtaining a desirable result. When we apply to the work situation, it refers to an employee's willingness to work for his/ her organization. The basic element of motivation is individual's expectation (either conscious or unconscious) of his/ her own efforts. The degree of motivation to work depends upon the strength of link he/she perceives between his/her efforts and the need fulfilling potential.

ix. Conducting Meetings:

For the successful management of TB Control Programme in the district/state, it becomes mandatory for the DTO/STO to conduct meetings of the key staff members. The meetings may also include those of Chief Medical Officers, community leaders, voluntary

organizations, medical colleges and various medical associations. Every DTO/STO should be familiar with the characteristics of a good meeting.

Types of Meetings:

Generally, there are four types of meetings:

(i) Informational meeting: Such a meeting is called to share new directives or strategies with all concerned persons. It saves time in achieving the results from a new emerging situation.

(ii) Opinion seeking meeting: Often, there is a need to seek the opinion of the participants and get feedback from peers concurrently. Such meetings help in reaching a consensus.

(iii) Problem solving meeting: Such a meeting helps to find solutions for specific problems. Free, frank and functional discussions are encouraged in such meetings to reach workable solutions.

(iv) Review meeting: Such meetings are often called to review the performance of various staff members. Quarterly review meetings of DTOs and monthly meetings of MO-TCs with their STSs and STLSs are essentially review meetings.

Planning and preparation for meeting

While planning for a meeting, following points must be considered:

(i) Objectives of holding the meeting must be very clear.

(ii) Participants should be enlisted; they must contribute to the purpose of the meeting.

(iii) Agenda for the meeting should be carefully worked out. Priority issues must be taken first and those which need less application of the mind should be kept last.

(iv) The date, time, venue and duration of the meeting should be intimated in advance to the participants.

(v) Sitting arrangement of the meeting should be such that everyone may communicate effectively.

(vi) For state level meetings where more than 15-20 participants attend the meeting, audio-visual arrangements should be made.

(vii) Background material should be provided to participants in reference to the agenda of the meeting along with a note pad and pen / pencil etc to record necessary events.

(viii) Every meeting needs to be documented. Organizers of the meeting must assign the task of making notes of proceedings of the meetings to a responsible person.

Conducting a Successful Meeting

1. Go through the agenda items before the meeting starts and set the mind for reaching decisions.

2. Always start the meeting in time. If you wait for latecomers, it demoralizes those who come in time.

3. Begin the meeting by stating the objectives of the meeting and indicating precisely what is expected to be achieved.

4. Initially, the issues that can be conveniently handled should be taken. These are called as 'soft agenda items' like review of earlier decisions and non-controversial items. This allows the group to warm up and get involved in more serious discussion.

5. Do not express your opinion first on any agenda item. Let everybody participate to the full extent.

6. Do not allow the compulsive talkers to monopolize.

7. Do not allow the discussion to go off the tangent.

8. Do not allow private discussion among participants.

9. Handle different persons in different ways.

10. Wind up the meeting by summarizing well and announcing the decisions reached.

Mistakes to be avoided during meetings

(i) Do not use power of your position to force agreement.

(ii) Do not talk too much. Listen patiently.

(iii) Do not try to rush up for discussion.

(iv) Do not let the meeting go beyond scheduled hours.

(v) Do not loose your temper.

(vi) Do not waste time on extraneous matter.

(vii) Do not start meeting late.

(viii) Circulate the minutes as early as possible after the meeting

x. Advocacy

Definition: Advocacy is winning the support of the key constituencies in order to influence policies and spending, and brings about social change.

Why advocacy?

(a) Advocacy attempts to change the behaviour of politicians and bureaucrats

(b) Since advocacy can influence policy makers favorably, it allows flow of more resources (money and manpower) for maintaining growth and sustainability of the programme.

How to do Advocacy?

Successful DTOs and STOs usually start by identifying the people they need to influence and planning the best way to communicate with them. They do their homework on an issue and develop a 'persuasive case' to maintain, grow and sustain RNTCP in their districts/states. They organize networks and coalitions to create a ground of support that can influence key decision-makers.

What key messages can be given?

(i) TB is a devastating disease, no. 1 killer of youths and women, creates problem of orphans and puts country into an economic loss of more than 12,000 crores of rupees/year.

(ii) DOTS strategy can control TB - ensures cure rate of more than 85%, detection rate of more than 70%, cuts death rate by a factor of seven, reduces problem of orphans.

When to do Advocacy?

Advocacy can be done just before important events and dates. This will help the DTO/STO to involve high-profile decision-makers to participate in the events.

9.7. FINANCIAL MANAGEMENT UNDER RNTCP

Financial management is done through State and District TB Control Societies.

(A) State TB Control Society (STCS)

Functions

1. To provide greater discretion, enhanced responsibility, and more ownership to states, societies have been formed to give autonomy in financial matters. Societies act by "bottom-up" planning and budgeting process, i.e. from DTCS/STDC-STCS/CTD and a "top down" funds release process, i.e. from CTD-STCS-STDC/DTCS.

2. Responsibility for releasing funds to DTCSs and STDC in the state, monitoring of expenditures and audit reports, and also providing statement of expenditures to CTD.

3. Ensuring the effectiveness of functions including monitoring and supervision of the district activities, conducting review meetings, managing drug stocks and doing financial management.

(B) District TB Control Society (DTCS)

Functions

The main objective of the District Tuberculosis Control Societies (DTCS) is to implement the RNTCP functionally, administratively as well as financially. The government established the DTCS for the following reasons:

1. Decentralizing implementation of the Programme

2. Improving co-ordination between the government functionaries and non-government organizations at the grass root level

3. Reducing bottlenecks for smooth flow of funds

4. Avoiding cumbersome administrative, logistical and financial procedures

The financial activities of the DTCS cover the following areas:

1. Obtaining funds, and materials from the Central and State Governments

2. Ensuring that the funds, equipment and materials are recorded properly in the books of accounts as per statutory and generally accepted norms and that the same are being utilized appropriately.

3. Reporting to the Central and State Governments on financial performance according to the guidelines specified by the Government of India.

(C) Maintenance of Funds of the STCS/DTCS

1. A separate saving bank account has to be opened and maintained in one of the nationalized banks.
2. All funds credited to the society shall be deposited in the bank.
3. Withdrawal from funds including all payments made shall be through cheques/ bank drafts.
4. All cheques shall be signed by any two of the three authorised signatories.
5. Unspent balance after closure of the financial year may be carried forward to the next financial year.

(D) Mechanism of flow of funds

1. The Government of India will make allocation of funds to the STCS on the basis of plan of action/ budget of the STCS, STDC and DTCs.
2. The STCS should prepare and submit budget to the CTD by October for the next year.
3. On submission of SOEs (DTCS, STDC, and STCS) by the STCS in April/October, the first and second release will be made in May/November by the GOI.
4. STCS allocates and releases funds to DTCS and STDC depending upon their individual performance and requirement on quarterly/six-months basis

(E) Basic Fundamentals for Preparation of Budget

1. Standard norms and guidelines prescribed by CTD should be strictly adhered to.
2. Budget should be prepared for each head for each district, STDC and STCS, keeping in consideration the actual requirement and realistic expenditure to be incurred by them and not merely on eligibility criteria.
3. Budget must be prepared for financial year, i.e. from 1 April (current year) to31 March (next year).
4. DTCS can reallocate revised budget up to 15%. If requirement still exceeds, approval of STCS must be obtained.
5. STCS can reallocate revised budget up to 100% of the recipient budget head without any prior approval from CTD.

(F) Standard Norms and Guidelines for Preparation of Budget:

These are available separately in the Guidelines for STCS/DTCS

(G) Other key points:

1. Budget requirements under a particular head for the year should be calculated after taking into consideration the balance from previous year.

2. In case funds are lying unutilized under specific head/s then they may be reallocated to the other head/s where utilization rate of funds is high. The exercise may be carried out for all districts ensuring that the balance available under respective heads for each district is not more than the 6-month requirement for the district. The amount to be reallocated to a particular head should be calculated after taking into consideration the amount already released under the head for the district so that the total funds available in the current financial year are not more than the eligible amount for the year for the receiving head.

3. Reallocation up to 100% of the eligible amount of the receiving head is permitted at the State level. For any reallocation exceeding this limit, prior permission of CTD must be obtained.

4. Hiring of Contractual Staff: The State is permitted to hire the following staff on Contractual basis in RNTCP districts without the prior approval of CTD

   a. One each of Medical Officer, Accountant, IEC Officer, Secretarial Assistant, DEO and Driver at State TB Cell

   b. One each of DEO, Driver and Part-time Accountant at District TB Centre

   c. One STS and one STLS for each TU

   d. Up to 20% of all LTs at designated MCs for the State as a whole after considering the number of available trained LTs after obtaining permission from STCS

   e. Up to one TBHV for every 1 lakh urban population after obtaining permission from STCS

   f. Up to 15% of Second MO at DTC after obtaining permission from STCS.

5. TA/DA for contractual staff is to be paid from the Contractual Services head, based on State Government rules.

6. Vehicles and equipment are to be purchased within the amount released for the purpose.

7. Equipment maintenance: Funds provided for Computer include the requirements for Internet Connectivity.

8. Drugs: Drug procurement is done at the central level. Anticipated requirement of drugs, including Pediatric drugs, should be calculated. The prevailing RNTCP procurement mechanism for drugs will be followed.

9. Research: The STDC should undertake or provide technical support to research on annual risk of infection, drug resistance surveillance, and other areas of importance like means to make treatment observation more convenient to patients and models of involvement of the private sector in tuberculosis control activities for effective monitoring and improvement of the TB control programme. A detailed justification of fund requirement for various activities should be prepared and sent to CTD for approval.

10. For the purpose of fund allocation, the division of States in terms of size is:

    a. Large State – Population > 30 million.

    b. Medium State – Population between 10 and 30 million.

    c. Small State – Population less than 10 million.

9.8. PUBLIC PRIVATE PARTNERSHIPS

Need for involvement

India has the largest private sector in the world that manages a considerable proportion of tuberculosis cases without notifying them. The few available studies of the health-seeking behavior of TB symptomatic individuals and patients have shown that more than 50% of patients first approach the private health sector.

Tuberculosis is encountered at all levels and by all types of health services ranging from primary health care services to the highly specialized hospitals in the different health care sectors. Traditionally, control of tuberculosis was considered a responsibility of the public health sector. As a consequence, tuberculosis control programmes were designed to be implemented through the available network of public health services. Over the years, the private sector has grown considerably in India. The private health sector in India varies considerably in its size, composition, and level of organization, types of services delivered and socio-economic groups served.

Public Private Mix (PPM) includes Public-public, Public-private, Private –private partnerships. While involving the private sector and other sectors, it is important to have a well-functioning RNTCP in the public sector first. The RNTCP experience shows that through the involvement of PPM the case detection improves. However the standards of the laboratory, as well as the monitoring, should NOT be compromised at any point of time.

There is a need to involve all the health facilities under RNTCP to get an epidemiological impact through standard management of TB cases

PPM providers

- Government facilities outside health department.
- Medical College
- Private Providers
- Non-Government Organizations
- Corporate & Other Sectors

Government facilities outside health department
All health establishments under ESI, Railways, CGHS, Defence, Petroleum & Natural Gas, Chemical & Fertilizer, Coal, Steel, Mines, Power, Ports and Prisons come under this group.

Medical College includes both public and private institutions

Private Providers
Private Providers are very accessible to patients and can play a key role in TB control. They can be from

- Modern Medicine Private Hospitals & Nursing Homes, Private Practitioners (PPs), Chemist Shops
- Other Systems of Medicine
- Traditional healers

The first contact of a large proportion of TB patients is a private practitioner. It has been acknowledged that involving private providers helps to improve both case detection and access to standard services under RNTCP. It is vital to have a regular and continuous interaction with the private health care providers including private Medical Practitioners. To achieve good treatment outcomes, PPs must follow standard treatment guidelines and RNTCP needs to support and supervise.

Government of India guidelines for involvement of private sector in RNTCP

Scheme 1: Referral. Persons suspected of having TB are referred by the PP to a RNTCP designated microscopy centre (DMC) for smear microscopy examination.

Scheme 2: Provision of treatment observation. PP or staff provided by the PP is to provide DOT for patients, ensure follow-up sputum collection and late patient retrieval.

Scheme 3A: Designated paid microscopy centre – microscopy only. A private health facility with its own laboratory can function as an RNTCP DMC and charge service fees.

Scheme 3B: Designated paid microscopy centre – microscopy and treatment. As in Scheme 3A, but in addition the private health facility can serve as a treatment centre. Service fees may be charged, but not for the anti-TB drugs administered.

Scheme 4A: Designated microscopy centre – microscopy only. A private health facility with its own laboratory can function as an RNTCP DMC that provides free services. The required laboratory materials for microscopy services are provided to the DMC by RNTCP.

Scheme 4B: Designated microscopy centre – microscopy and treatment. A private health facility can serve as both an approved RNTCP DMC and treatment centre. Diagnostic and treatment services are provided free of charge, and the required laboratory materials are provided to the DMC by RNTCP.

Involvement of all the health establishments in RNTCP is vital for enhancing case detection

Non-Governmental Organizations (NGOs)

NGs in India have an important role in health care activities as they are involved in health care ranging from multi-specialty hospitals to community health activities. Generally NGOs have credibility in the community because of their accessibility and flexibility of services. RNTCP has proactively solicited the involvement of NGOs in TB control activities. In a pioneering effort, the government of India has prepared policies, guidelines and schemes to involve the NGOs. The financial component has also been considered in the guidelines. NGOs can be Hospital Based and community Based.

Schemes for NGO and RNTCP collaboration

Scheme 1: Health Education and Community Outreach. Under this scheme NGOs generate community awareness, sensitize and train volunteers, disseminate information, provide counseling to patients and families, do advocacy with key groups, and develop IEC material according to the local context.

Scheme 2: Provision of Directly Observed Treatment (DOT). This scheme engages NGOs as DOT providers. NGOs take the responsibility to identify, train and supervise volunteers who provide DOT to patients and maintain records as per RNTCP guidelines.

Scheme 3: In-hospital Care for TB Disease. Under this scheme established and experienced NGOs already providing in-hospital care for TB patients perform sputum smear examination, treatment and follow-up of patients as per RNTCP guidelines.

Scheme 4: Microscopy and Treatment centre. The collaborating NGO serves as a designated microscopy and treatment centre for a defined population and the diagnostic

and treatment services are provided free by the NGO. RNTCP provides laboratory consumables, drugs and microscopes.

Scheme 5: TB Unit (TU) Model. Under this scheme the NGO takes full responsibility for providing services as a TB unit including sputum microscopy, treatment, direct observation, late patient retrieval, recording and registration per RNTCP guidelines. The NGO provides services for approximately 500,000 population and is responsible for supervision of up to five microscopy centers. RNTCP provides drugs, laboratory consumables, printed material and training.

Public Private Partnerships have demonstrated good patient compliance, conversion and cure rates.

Corporate and Other Sectors

Corporate and Other Sector includes managing TB in the workplace both in public as well as private undertakings.

Manage TB in the workplace either by referring suspects to the RNTCP or, where appropriate, implementing their own workplace programmes.

Corporate sector may refer patients to the public sector Designated Microscopy Centre (DMC) / DOT centre, recognized private sector DMC/ DOT centre, or may run a DMC or DOT centre on its own following the policies and guidelines of RNTCP.

RNTCP provides drugs, laboratory consumables, printed material and training to the key staff. No civil works should be done in the other sectors for involving them as Microscopy and DOT Centres.

Role of Medical Colleges in the RNTCP

Involvement of medical colleges in the Revised National Tuberculosis Control Programme (RNTCP) is a high priority. A national task force and five zonal task forces (ZTF) have been formed for their effective involvement in RNTCP. Within each zone, nominated medical colleges have been given the responsibility to function as nodal centres. All states which have medical colleges have formed State Task Forces (STF). In each medical college, there should be a core committee to arrange for training and oversee the functioning of the microscopy / treatment centre in their respective institutions. Continuing success of RNTCP requires involvement of all large providers of care including medical colleges. Medical college professors have an important role in TB control as opinion leaders and trendsetters, in sustaining the programme by teaching and practicing DOTS and most important of all as role models for practicing physicians.

National Task Force (NTF)

Composition: Chairman: DDG (TB)

Member Secretary: one from the nodal medical colleges in rotation.

Members: 1 each from CTD, 7 nodal medical colleges, TRC, NTI, LRS and WHO.

The main task of NTF will be to provide leadership and advocacy, coordination, monitoring, and policy development on issues related to effective involvement of medical colleges in RNTCP.

Zonal Task Force (ZTF)

Composition: Chairman: Representative from the nodal centre (where more than 1 nodal centre, in rotation after 2 years). The list of nodal centres is on page 198.

Member Secretary: STO of the State where nodal centre is located

Members: Representatives of the State Task forces within the zone (1 medical college per State), STOs of the States within the zone

Functions

1. Ensure that State Task Force (STF) are formed in all States
2. Compile and update the list of Medical Colleges with their RNTCP implementation status
3. Organize ZTF meetings to review progress and draw up annual action plans
4. Ensure training of ZTF members
5. Organize zonal level CMEs/Seminars/workshops and other academic activities for medical colleges and the private sector at least once a year
6. Facilitate in operational research by medical colleges
7. Field visits / attend meetings of STF, workshops etc. All States to be visited at least once every quarter. Field visits should be conducted jointly by members of ZTF and STF in coordination with the STO.
8. Disseminate information about RNTCP to medical colleges.

State Task Force (STF)

Composition: Chairman: Representative from medical college to be elected

Member Secretary: STO of the State

Members: 1 representative from each college, on rotation basis if required

Functions

1. Ensure establishment of MC cum DOT centers in all Medical Colleges located in RNTCP implementing districts.

2. Disseminate information about RNTCP to medical colleges at least twice a year.

3. Help organize training for core committee members of individual medical colleges.

4. Visit every Medical College at least twice a year.

5. Organize State level CMEs/Seminars/workshops and other academic activities for Medical Colleges and the private sector at least twice a year.

6. Hold STF meetings to review progress / performance of medical colleges in the State.

7. Plan future activities.

8. Define priorities for operational research based on the national and zonal workshop. Review research proposals and facilitate in conduction of research by medical colleges.

Medical College core committee

Composition: At least 4 members with representatives from department of medicine, chest medicine, microbiology and community medicine. Coordination of TB control activities is done by District TB Officer (DTO).

Functions

1. Establish MC cum DOT centre in all medical college hospitals, even if the DTC is within the same premises of the medical college.

2. Organize sensitization / workshops / trainings for faculty members / PGs / UGs / Interns / paramedical staff, etc.

3. Ensure that teaching on TB/RNTCP form part of curriculum for PG students/ Residents / Interns / UG's. Teaching should include practical training through visits to DOTS centres as well as classes taken by departments of Medicine, TB & Chest Medicine, Microbiology, PSM etc.

4. Coordination between various departments so that patients get the services in respect of their TB problem under one roof.

5. Coordinate with the district TB programme for participation in the quality assurance network of sputum microscopy, referral network, management of complicated cases of TB, and submission of monthly PHI report.

6. Undertake operational research for RNTCP on the priority areas defined by the STF for the State. Encourage research on TB by faculty members as well as by students for their thesis etc.

7. Undertake advocacy for the programme by publishing articles on TB, newsletters, giving radio / TV talks, etc

8. Hold Monthly meeting to review performance of the MC cum DOT centre in the hospital.

9. Submit a compiled quarterly report of the MC cum DOT centre to the STF

RNTCP sensitization/training in medical colleges

All Medical staff at Medical colleges should be sensitized for one day. The interested faculty members/ those identified by HOD can then be trained for the full 5 days. However the staff in-charge of the DOT centre at Medical College should receive full 12-day training on modules 1-9. This should include "buffer" staff to allow for possible leave / transfer of the staff otherwise designated for the purpose. For Paramedical staff, the training would be DOT provider training using the MPW module for 2 days. Faculty members from Medical College would be used as trainers / facilitators. The training plan is given on page 167.

Management of TB cases presenting to a hospital as Outdoor patients (Flowchart 1 on page 200)

RNTCP diagnostic algorithms are to be strictly adhered to by all attending physicians. Diagnosed TB patients should be referred to the local DOTS centre in the respective hospital / medical college. It may be ensured that patients coming from district where the hospital is situated should be started with DOTS therapy only after verifying the address of the patient and their contact persons. Wherever necessary medical colleges are provided by RNTCP with human resource and logistic support to implement and coordinate the activities of RNTCP in their hospitals. One Medical Officer, one STLS, one LT and one TB health visitor can be provided on contractual basis through the district TB Control Society. Drugs, consumables, etc. will be provided by the District TB Officer.

If patient is required to be referred to another health facility for DOTS, a referral form in triplicate is to be prepared – one given to patient, one each to be posted to the respective DTO and TU/PHI. Record of referred cases is to be maintained in the referral register [(Copy of the referral for treatment form is on Page No 181 module 4)]. The respective, STS is responsible for tracking of these referral cases. Programme review meetings held in the district should be utilized to facilitate tracking and feedback of referred cases. The receiving treatment facility should honour diagnoses made at the medical college/hospital and must provide feedback.

Indoor patients (Flowchart 2 on page 201)

All indoor patients who reside in an RNTCP implementing district are to be treated with RNTCP regimens using prolongation pouches which will be supplied by DTO. The DOTS Centre of the respective Medical College must be informed of the patient's admission at the earliest, to enable transfer of the patient to their respective DOTS Centre on discharge. On discharge, patients may be given a maximum of three doses (1 week drug supply) to cover intervening period prior to their continuation of treatment at their respective DOTS Centre, hence ensuring no interruption in treatment.

All indoor patients treated under RNTCP, should be registered under the local TU where the medical College is located. The smear conversion and treatment outcome of all the transferred patients should be sent back by the TU where the patient was transferred to the TU of the medical college.

STO/DTO should undertake the following activities for involvement of medical college hospitals in the RNTCP

1. Identify all major hospitals to be involved in the RNTCP as a TU/MC/DOT referral centre as appropriate. Prioritise those with heavy OPD attendance.

2. Consult with the Institute to conduct sensitization workshops on RNTCP for faculty members where the same has not been done.

3. Organise RNTCP training of Medical officers, Laboratory Technician and DOT providers and other staff as required.

4. Where required, provide Binocular Microscopes if available and upgrade the laboratory for the Microscopy centres. Laboratory consumables, forms and registers required should be provided by the State/District TB Cell.

5. Provide 100% requirement of RNTCP drugs

6. Ensure supervision to the laboratory and treatment services and assist in late patient retrieval wherever necessary.

7. Provide technical inputs, guidance and supervision as per programme

8. Where required, hire additional contractual staff to implement and coordinate the activities of RNTCP in Medical Colleges/Hospitals as per provisions under the programme.

In addition to the above, co-ordinate with Deans/Directors of the Medical College hospitals so that they:

1. Provide space for a Microscopy Centre in the hospital.

2. Identify one senior faculty member, preferably from the Dept. of TB & Chest or from Medicine as a nodal person for RNTCP activities.
3. Designate 1 Laboratory Technician and 1 health worker as DOT provider (treatment observer). It should be ensured that the designated staff especially the LT has sufficient time for RNTCP work.
4. Issue directions to the major OPDs of the college/hospital to refer all patients with cough of 3 weeks or more to the MC of the hospital.
5. Ensure availability of faculty members for sensitization regarding the RNTCP and for training of key staff like the MO in charge of the MC, LT, DOT providers.
6. Issue instructions to all the doctors to follow RNTCP diagnostic algorithm for all patients and standardized treatment policies as per the RNTCP. Proper referral of patients who reside outside the district in which Medical College is situated should be undertaken with the help of the staff in the hospital MC.
7. Stop procurement of anti-TB drugs except for those patients who are critically ill and require in-door and specialized treatment. RNTCP drugs should be used for majority of TB patients
8. Agree to supervision by RNTCP staff and submit reports as required under the RNTCP

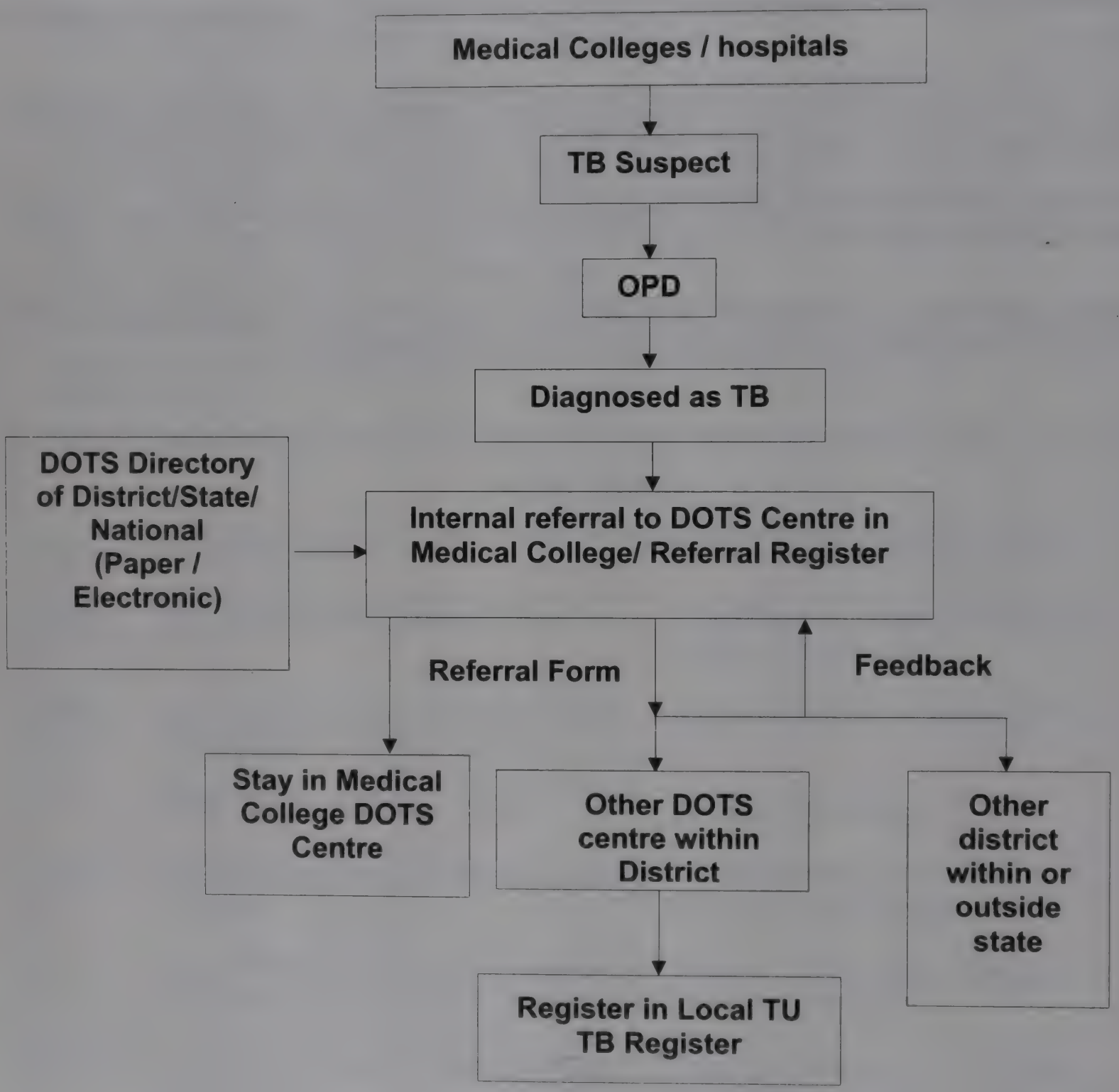
Nodal centres

Zones	Nodal centres	States covered by the zones
East	RG Kar Medical College, Calcutta	West Bengal, Bihar, Jharkhand, Orissa, Chhattisgarh
West	Lokmanya Tilak Municipal Medical College and Hospital, Mumbai	Maharashtra, Goa, Madhya Pradesh
	SMS Medical College, Jaipur	Gujarat, Rajasthan,
North	All India Institute of Medical Sciences, N Delhi	Uttar Pradesh, Delhi, Jammu & Kashmir, Uttaranchal
	Post Graduate Institute of Medical Education and Research, Chandigarh	Punjab, Chandigarh, Haryana, Himachal Pradesh
South	Christian Medical College, Vellore, Tamil Nadu	Kerala, Karnataka, Tamil Nadu, Pondicherry, Andhra Pradesh
North East	Guwahati Medical College, Guwahati, Assam	Manipur, Nagaland, Mizoram, Sikkim, Arunachal Pradesh, Assam, Tripura, Meghalaya

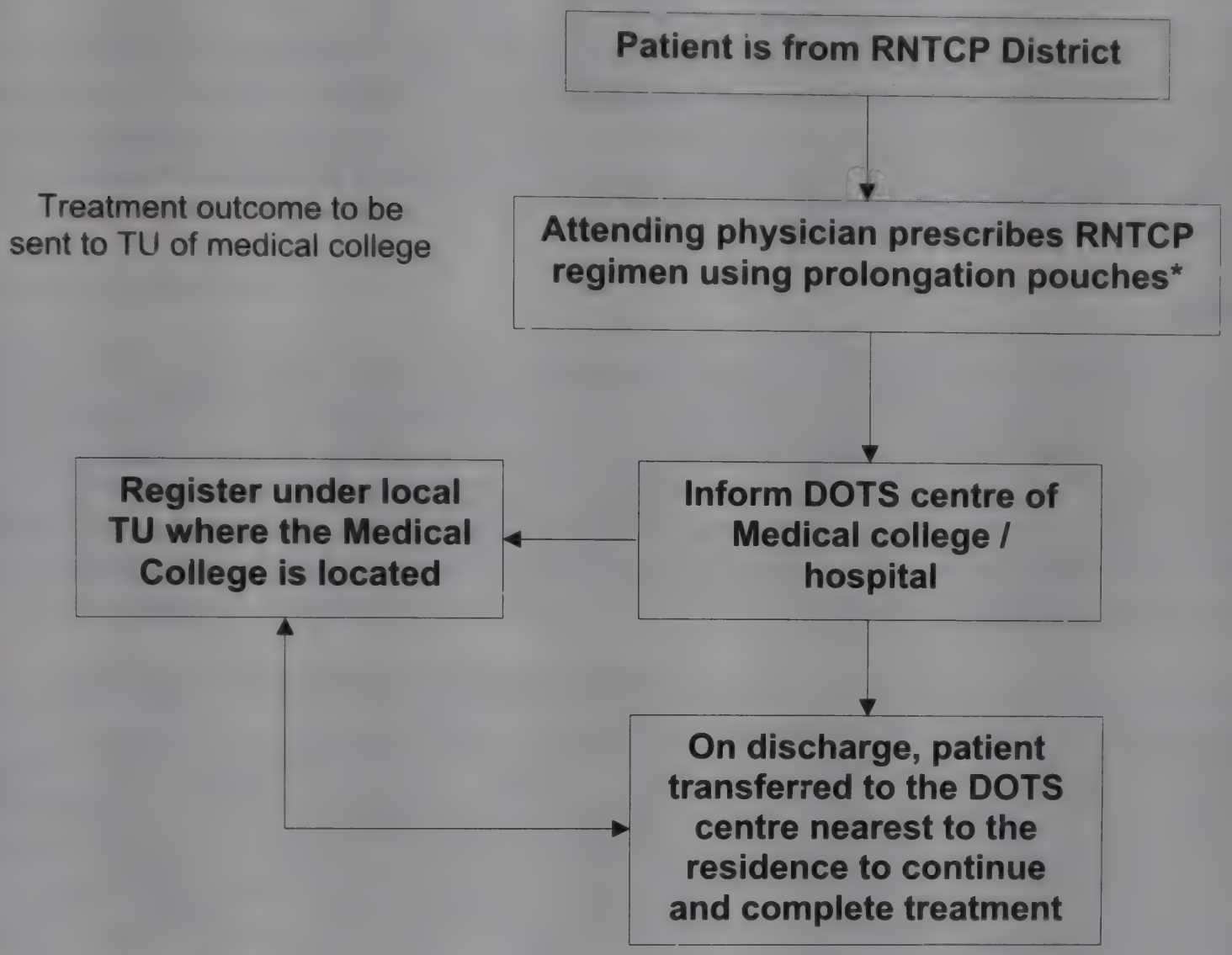
Suggested readings

- Involvement of Private practitioners in RNTCP- publication of Central TB division.
- Private Practitioner Module – publication of Central TB Division.
- Involvement of Non-Governmental Organizations in RNTCP- publication of Central TB division
- Directives from the Ministry of Railways, Defence, Petroleum & Natural Gas, Chemicals & Fertilizers, Power, Steel, Coal, Mines, Ports, CGHS on the tbcindia.org website.
- Tonsing J, Mandal PP. Medical colleges' involvement in the RNTCP: current status. JIMA 2003; 101:164-166.
- Second meeting of the national task force for involvement of medical colleges in the RNTCP; 22nd November 2003, New Delhi – Recommendations.

FLOWCHART 1 – Outdoor patients



FLOWCHART 2 – Indoor patient



*** If attending physician judges that RNTCP regimen is not appropriate for the individual patient, a non-RNTCP regimen will be prescribed**

9.9. TB / HIV AND RNTCP – NACO COORDINATION

Introduction

Acquired Immune Deficiency Syndrome (AIDS) is a life threatening condition caused by the Human Immune-deficiency Virus (HIV). Since the first description of AIDS in 1981, researchers have identified 2 serotypes of HIV, In India, with HIV-1 subtype C the commonest. Once the individual is infected, the virus breaks down the immune system and makes him/her vulnerable to multiple opportunistic infections. These manifest in the form of a syndrome called AIDS. People infected with HIV may take 7-10 years to develop AIDS. In developing countries like India, the progression to AIDS may be sooner because of malnutrition and a poorer state of health.

Epidemiology

Globally, it is estimated that 48 million people worldwide are living with HIV/AIDS. Almost 90% of all HIV infections are in the developing world. Each day about 14,000 people get infected with HIV. More than 22 million people have died from AIDS since the start of the epidemic including 3.6 million children. The number of people having dual infection with HIV and TB has risen. In 2000, the revised estimates for global HIV-TB indicate that 9% of the total 8.3 million new TB cases are attributable to HIV. Of the 1.8 Million deaths from TB globally, 12% were attributable to HIV.

In India, there are an estimated 5.1 million people living with HIV/AIDS in 2004. India has the second highest number of HIV infected people in any single country, next only to South Africa. Based on sentinel surveillance, six states, namely, Andhra Pradesh, Karnataka, Manipur, Maharastra, Nagaland and Tamil Nadu have >1% HIV positivity in antenatal women, and have therefore been classified as high prevalence states. In 2003, it was estimated that <5% of TB patients in India were HIV-positive (WHO Global TB Report – 2004). However, the seroprevalence of HIV infection among TB patients could vary depending on the HIV prevalence in the general population.

Impact of HIV on TB

Tuberculosis (TB) is one of the earliest and commonest opportunistic diseases amongst HIV infected persons. The life-time risk of developing TB is 10% in non-HIV infected persons, but in HIV infected person the risk increases up to 60%. The following consequences are likely to be seen wherever there is high prevalence of dual infection

- Increased load of TB cases, including smear-positive cases
- Increased morbidity in TB patients due to HIV related opportunistic infections.
- Increased death rates leading to low cure rates.
- Increased burden on TB services

- Over-diagnosis of sputum smear-negative Pulmonary TB.
- HIV stigma may lead to inadequate supervision of anti-TB chemotherapy and delay in seeking care by TB suspects.

Impact of TB on HIV

In a TB-HIV co-infected person, the immune response to TB bacilli increases HIV replication thereby increasing the viral load several folds There is a rapid decline in CD4 count resulting in rapid progression of HIV infection to AIDS. Thus the health of the patient who has dual infection deteriorates much more rapidly than with a single infection. TB is the most common cause of mortality in HIV positive individuals in India.

Clinical features

Pulmonary tuberculosis is the most common manifestation of tuberculosis in adults infected with HIV. The clinical pattern of tuberculosis correlates with the patient's immune status. If TB occurs in the early stages of HIV infection when immunity is only partially compromised, the features are more typical of adult forms of tuberculosis. As immune deficiency advances, HIV-infected patients present with atypical pulmonary disease resembling primary tuberculosis or extra-pulmonary or disseminated disease. Amongst HIV infected patients cough and haemoptysis are reported less frequently.

Diagnosis of TB in HIV positive patients

The RNTCP diagnostic algorithm for TB should be followed. Sputum microscopy remains the primary tool of diagnosis of TB even in HIV infected patients. Chest X-Ray is needed for persons suspected of having TB who are smear- negative and who do not respond to a course of broad spectrum antibiotics. No radiographic pattern is diagnostic of TB. The HIV infected persons with a relatively well preserved immune function will show classical hallmarks of the disease like cavitation, apical distribution, pulmonary fibrosis, shrinkage and calcification. However, as immune suppression worsens, chest X-rays more often show atypical findings such as pulmonary infiltrates affecting the lower lobes, intrathoracic lymphadenopathy and sometimes a normal chest radiograph.

Diseases other than TB such as bacterial pneumonia, Pneumocystis carini pneumonia, Kaposi's sarcoma, fungal infections and Nocardiosis can cause both the classical and atypical chest X-ray findings, and if sputum smears are negative these conditions have to be considered in the differential diagnosis. The following table summarizes the clinical picture, sputum smear result and chest X-ray appearance which often differ in early and late HIV infection:

Features of PTB	Stage of HIV Infection	
	Early	Late
Clinical Picture	Often resembles post-primary PTB	Often resembles primary TB
Sputum Smear Result	Often positive	Often negative
Chest X-Ray Appearance	Often cavities	Often Infiltrates, with no cavities (may be normal) (May be normal)

Extra-pulmonary Tuberculosis

The main types of extrapulmonary TB seen in HIV-infected patients are lymphadenopathy, pleural effusion and pericardial effusion. Presentation of extra-pulmonary TB is generally no different in HIV-infected compared with HIV-negative patients. However, HIV-related TB lymphadenopathy can occasionally be acute and resemble an acute pyogenic bacterial infection. Diagnosis of extrapulmonary TB is same as for HIV negative patients.

Paediatric Tuberculosis

Similar to adults, pulmonary TB is the most common manifestation of TB in HIV-positive children. The diagnosis of pulmonary TB in children less than 4 years old has always been difficult and HIV-infection further compounds the problem. Mantoux test may be negative in later stages of HIV infection. The management is as per RNTCP diagnostic algorithm for Pediatric TB.

Sputum smear microscopy remains the cornerstone of diagnosis of pulmonary TB, even among HIV infected patients

Treatment of TB disease in HIV-infected patients

Early diagnosis and effective treatment of Tuberculosis among HIV-infected patients are critical for controlling the disease, minimizing the negative effects of TB on the course of HIV, and interrupting the transmission of tuberculosis to other persons in the community. Delays in the diagnosis of TB have been associated with worse outcomes, so initiation of treatment as soon as TB is suspected is very important.

Anti-TB treatment is the same for HIV-infected persons as it is for HIV-negative TB patients and is to be treated with RNTCP regimens under DOTS strategy. For details on treatment of TB in HIV infected patients please refer to Annexure – II of Module 4.

Use of Thioacetazone is contraindicated because it is associated with a high risk of severe and sometimes fatal skin reactions in HIV-infected individuals.

The case fatality of TB/HIV patients is higher than TB patients without HIV infection. This is partly due to other HIV-related problems like septicemia, diarrhea, pneumonia, anaemia, Kaposi's sarcoma, cryptococcal meningitis etc. Case fatality is less in TB/HIV patients treated with DOTS than with the unsupervised treatment.

Operationalisation of RNTCP-VCTC co-ordination

The service Linkage between RNTCP and VCTC (Voluntary Counseling and Testing Centres) is the most important area of co-ordination between AIDS and TB Control programme. VCTCs will identify and refer suspected TB cases to the Designated Microscopy Centre whereas Designated Microscopy Centres / PHIs may refer TB patients with HIV related risk behaviour and other signs and symptoms suggestive of opportunistic infections for voluntary counseling and testing for HIV infection. Known HIV positive TB patients can also be referred to the VCTC for counselling. The presence of HIV infection in an individual has to be based on three positive test results of ELISA and / or rapid tests, using three different diagnostic kits.

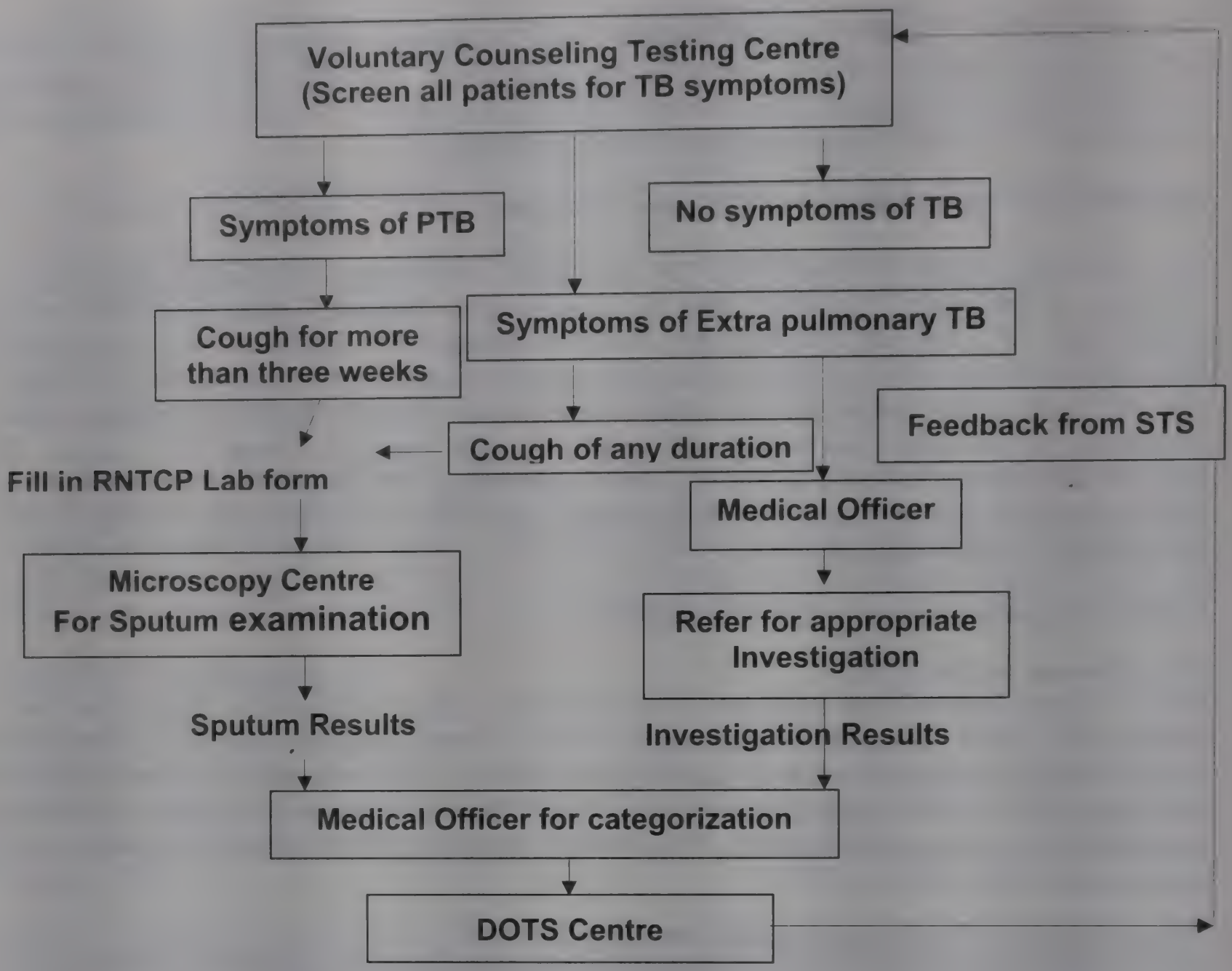
Referral of persons from VCTC TO RNTCP

The Process at the VCTC

VCTC Counsellors will ask each and every client for history of cough for more than three weeks and other associated symptoms of TB. These suspects will be referred to Designated Microscopy Centre for sputum examinations and in case of symptoms of extra pulmonary TB, to the appropriate doctor. In EPTB, cough of any duration should be subjected to sputum examination. The RNTCP lab form will be used for referral and appropriately filled by the VCTC.

The process at the Designated Microscopy Centre

Once the patient reaches the Microscopy Centre, the diagnostic algorithm of RNTCP will be followed. The Laboratory Technician should be instructed to mention the name of VCTC as the referring unit in TB laboratory register.

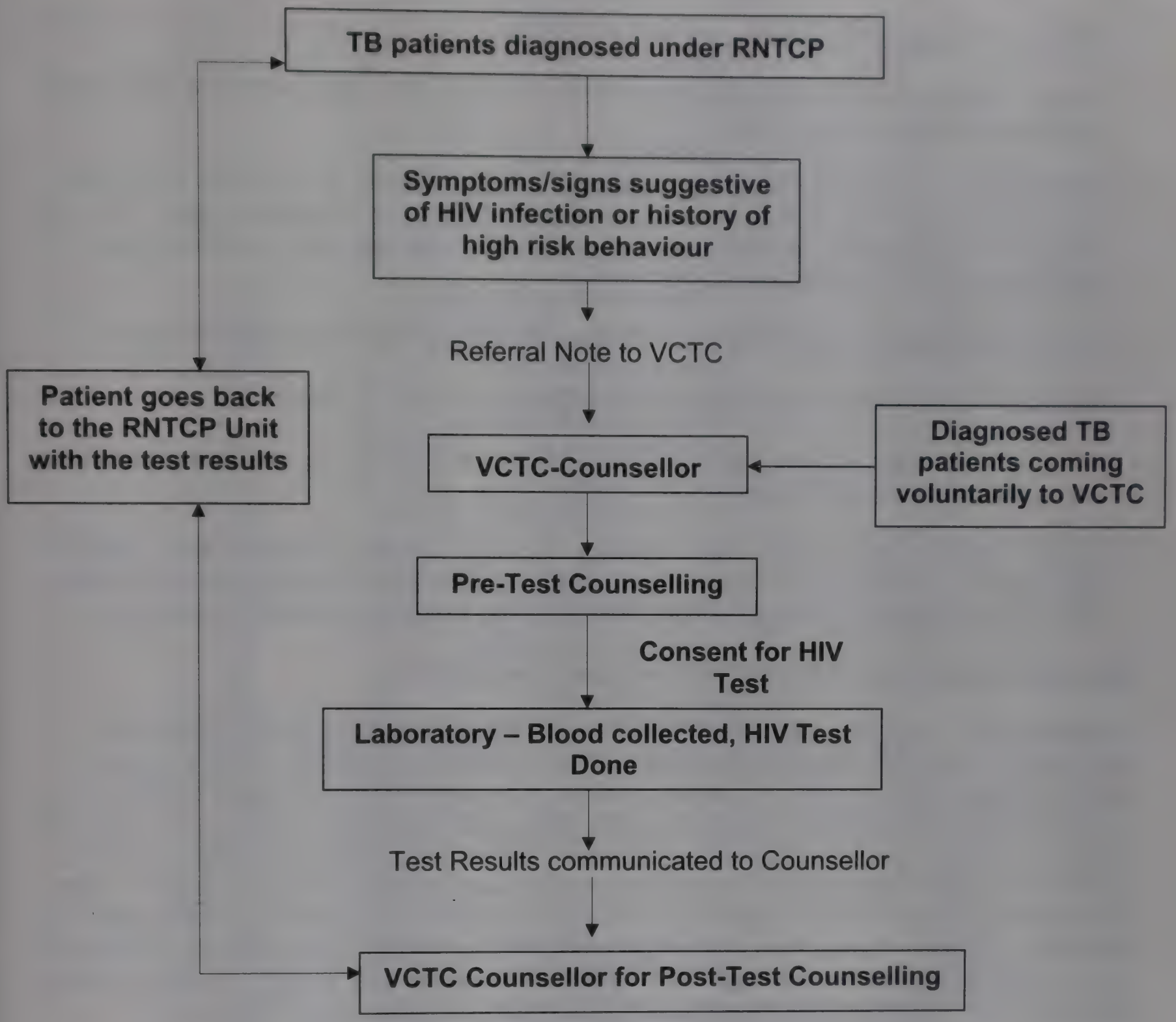


Referral of TB patients from RNTCP to VCTC for HIV-Testing

Process at the Microscopy /DOT Centre TB patients / suspects with known history of high risk behaviour should be referred by the doctor to the VCTC. The Investigations for TB should first be completed and then the patient should be referred for HIV investigations. While referring to the VCTC, the doctor should write a referral note to VCTC in which the TB status of the person is mentioned.

Process at the VCTC

Once the referred TB patient reaches the VCTC, the same procedure will be followed as that for any other client attending the VCTC. Some TB patients may also come voluntarily for HIV Testing.



Steps for Operationalization

- Ensure that the VCTC, DMC and DOT centre are in same campus. In case they are not in the same campus, establish referral linkages between them.
- Ensure that all the VCTC and RNTCP staff including the LT of DMC are trained in TB-HIV.
- Provide RNTCP Lab Forms for referral of patients from VCTC to RNTCP

- Provide a MC and DOT directory at all the VCTCs.
- Ensure Posters on TB are displayed at VCTCs and any other IEC material on TB that is available for distribution to clients
- CONFIDENTIALITY OF HIV STATUS MUST BE ENSURED at all levels by all staff. Remember that HIV status should not be mentioned in Treatment card, TB lab Register, TB Register or any other document. Do not use any symbols/codes for identification of HIV positive persons.
- VCTC Counsellors to visit DMC and STS to visit VCTC to follow-up referred cases.
- Monthly RNTCP Review meetings are to be attended by VCTC Staff.
- DTO, STO and VCTC Programme Officers to review TB-HIV co-ordination activities during their periodic field visits.
- DTOs should ensure that ART delivery centres develop linkages with RNTCP diagnostic & treatment services using RNTCP guidelines for out-patient and in-door case management in medical colleges, including the treatment referral mechanism.

Monthly reporting for VCTC-RNTCP co-ordination activities

To prepare the monthly report, the first step will be to make the Line-List (Form No - I) which will be the joint responsibility of the VCTC counsellor and STS. The Line List for patients referred in the month of January, will be completed in the first week of March (by the fifth of the month) by the counsellors and STS. Once the Line-List is completed, the monthly report (Form No - II) will be prepared by the VCTC and submitted to all the concerned officials (State AIDS Control Society, DTO etc) by the 10th of the month. There will be delay of one month in reporting of TB-HIV activities because of the time taken for diagnosis, initiation of treatment and registration of TB patients. The section on TB/HIV in the quarterly programme management report (refer page 87) should be filled taking information from the monthly report of TB-HIV activities compiled at VCTC (Form II)

At the State AIDS Control Society the information on TB-HIV activities will be compiled and a centre-wise report along with the monthly report for the entire state will be sent to NACO, STO, CTD by the 20th of every month.

Information from these monthly VCTC –RNTCP reports should be used to fill up the table on TB/HIV in the district quarterly programme management report. However data from one quarter should be reported in the subsequent quarter's report.

Form – I: LINE-LIST OF PERSONS REFERRED FROM VCTC TO RNTCP

REPORTING MONTH: _____ YEAR _____

NAME OF VCTC: NAME OF DISTRICT:

TO BE COMPLETED BY VCTC COUNSELLOR								TO BE COMPLETED BY STS										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Sl.No.	Complete Name & Complete Address	Age	Sex	New or Follow Up Patient	Date of referral	Name of RNTCP Unit referred to	Has Person reached RNTCP Unit (Yes/No)	Has Patient undergone three sputum Examination –(Yes/No)	Date of Sputum Examination	Sputum Result - (Positive/Sputum Negative)(If three examinations are done)	Date and Investigation Report for Extra pulmonary TB	Is patient diagnosed as TB –Yes or No	If diagnosed as TB, specify whether patient is sputum positive TB, sputum negative TB or Extra pulmonary TB	Is patient receiving DOTS or Non-DOTS	Treatment Category	Date of Starting Treatment	TB No.	Remarks	
Sign of Counselor Sign of MO-VCTC Date of completion:								Signature of STS Date of Completion:				Signature of DTO/CTO/MO-TC							

Form – II: REPORT OF TB-HIV ACTIVITIES AT VOLUNTARY COUNSELLING TESTING CENTRE

FOR THE MONTH OF _____ YEAR _____

Name of VCTC: **Name of the District:**

I. TOTAL NUMBER OF CLIENTS ATTENDING VCTC:

a) No. of clients who received Pre-test Counseling	
b) Out of above (a), No. detected to be HIV Positive	
c) No. of HIV Positive and HIV Negative Follow-up Clients who attended VCTC	

II. REFERRAL OF SUSPECTED TUBERCULOSIS CASES FROM VCTC TO RNTCP

	HIV positive	HIV Negative
a) No. of persons suspected to have TB referred to RNTCP Unit		
b) Out of above (a) referred cases, No. who have reached RNTCP Unit		
c) Out of above (b) no. who have undergone complete Investigation		
d) Out of the above persons undergoing complete investigation(c), No. diagnosed as having:		
(i) Sputum Positive TB		
(ii) Sputum Negative TB		
(iii) Extra-Pulmonary TB		
e) Out of above (d), diagnosed TB patients, number receiving DOTS		

III. REFERRAL OF DIAGNOSED TB PATIENTS FROM RNTCP TO VCTC

a) No. of TB patients attending VCTC (referred or Direct Walk-In)	
b) Out of above (a), No. Tested for HIV	
c) Out of above (b), No. detected to be HIV Positive	

IV. IEC ACTIVITIES

No. of clients/patients receiving information / counselling on TB	

Name & Signature of Medical Officer – Incharge VCTC

To establish co-ordination between RNTCP and VCTC

The DTO should:

- Establish and organise Quarterly meetings of the District TB-HIV Co-ordination Committee.
- Ensure that RNTCP Lab form, DOT directory and IEC material are provided to all the VCTCs in the district
- Ensure that persons referred from VCTC for sputum examination are recorded in TB Laboratory register as referrals from VCTC
- Ensure that VCTCs are provided feedback by the STS
- Conduct regular monthly meetings between VCTC and RNTCP staff
- Ensure confidentiality of HIV status is maintained.
- Ensure that VCTC and RNTCP staff is trained in TB-HIV.
- Ensure that appropriate measures are taken to prevent spread of TB in facilities caring for HIV-AIDS
- Ensure the prevention of spread of HIV through safe injection practices

References:

1. AIDS Epidemic update, Dec 2003. UNAIDS & WHO - 2003
2. Estimates of HIV Infection, NACO Report 2002
3. Surveillance for AIDS Cases in India, NACO, 30th June 2004
4. World Health Organization. Regional Strategic Plan on HIV/TB, SEARO. October 2003
5. World Health Organization. Guidelines for implementing collaborative TB & HIV programme activities. Stop TB & Department of HIV AIDS. WHO Geneva. 2003.
6. World Health Organization. Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2004, Geneva, Switzerland, ISBN 92 4 156264 1.
7. Allwood K, Keruly J, Moore-Rice K, Stanton D, Chaulk CP, Chaisson RE. Effectiveness of supervised intermittent therapy for tuberculosis in HIV infected patients. AIDS 1994; 8: 1103 – 1108
8. World Health Organization. TB/HIV- A Clinical Manual. WHO/HTM/TB/2004.329. WHO, Geneva, 2004
9. Central TB Division. Training Manual for Medical officers on HIV/AIDS, April, 2002

9.10. EXTERNAL QUALITY ASSESSMENT (FOR LAB QUALITY ASSURANCE)

The quality assurance (QA) system of the RNTCP sputum smear microscopy network has been discussed briefly in Module 3. The complex issue of QA of laboratory services is highly dependent on the structure of the health system and laboratory network, and incidence of disease. To optimize QA, decentralization of the supervision and monitoring of the laboratory network is essential, and capacity building of the states to undertake these activities becomes a priority. This process requires the active support and participation of the respective administrative levels in the country.

Laboratory Network

The network of DMCs throughout the country is supported by STDCs/ IRLs (Intermediate Reference Laboratories) and overseen by three National Reference Laboratories (NRLs). The laboratory network is organized according to three levels under the RNTCP namely; National level (National to State), State level (State to District); and TB Unit level (DTC/ TU to DMC).

The RNTCP has established a system to monitor laboratory activities based on international guidelines. The activities of NRLs, STDCs/ IRLs and DTC/ TU are as follows:

1. The activities of NRL:
    a. On-site evaluation of STDC/ IRL Labs
    b. Manufacture of Panel testing slides and panel testing of STDC/ IRL Lab staff
    c. Training of STDC supervisory staff in:
        i. On site evaluation of STLS
        ii. Manufacture of panel slides
        iii. Assessment of blinded re-checking of DMC slides at DTC
        iv. Facilitating the training of STLS for External Quality Assessment (EQA)
    d. Re-training of STDC/ IRL supervisory staff, if required.
    e. Prompt reporting the results of activities to STO/ DDG TB.
2. The activities of STDC/ IRL:
    a. Training of EQA for STLS, DTO, MO-TC
    b. On-site evaluation of DTC Labs,

c. Manufacture of Panel testing slides and panel testing of DTC Lab supervisors including all STLS of the district

d. Assessment of blinded re-checking of DMC slides at DTC

e. Re-training of DTC LT/ STLS, if required.

f. Prompt reporting the results of activities by Director STDC/ IRL to STO, CTD & NRL.

3. The activities of DTC/ TU:

a. On-site evaluation of DMC Labs

b. Unblinded re-checking of DMC slides at DMC

c. Blinded re-checking of DMC slides at DTC

d. Prompt reporting of the results of activities to LT and MO of DMC as well as STDC/ IRL.

e. Panel testing and re-training of DMC LTs, if required.

A. On-Site Evaluation (OSE)

A visit to STDCs/ IRLs and DTC/DMCs is an essential component of a meaningful QA programme. As part of an ongoing EQA process, depending on the performance of the laboratory being visited, the frequency of on-site evaluation is decided. On-site evaluation is conducted at least once a month by STLS to the DMC, once a year by STDC/ IRL laboratory supervisors to District TB Centres (DTCs) and TB Units (TUs) and once a year by laboratory supervisors of NRLs to STDCs/ IRLs. This provides an opportunity for immediate problem solving, taking corrective action and on-site retraining.

When poor performance is identified through any of the above-mentioned activities, additional visits by trained laboratory personnel from the higher level laboratory (the STDC/ IRL or NRL laboratory Supervisors) are mandatory for evaluation of all laboratory procedures.

The visit includes a comprehensive assessment of laboratory safety procedure, conditions of equipment, adequacy of supplies as well as the technical components of AFB smear microscopy, which includes preparation, staining and reading of smears. Sufficient time must be allotted for the visit to include observation of all the work associated with AFB smear microscopy.

On-site evaluation at DMCs should also include examining five positive and five negative smears to observe the quality of smear and staining as well as condition of the microscope. At the DMC, the LT arranges all the slides in the slide box serially as per laboratory register

and preserves all the slides after examination (LT has to preserve all the slides till RBRC process is complete and feed-back is given). The supervisor (STLS) re-checks monthly, on his Onsite evaluation visits, 5 positive and 5 negative slides selected from the lab register by systematic random unblinded sampling procedure. STLS enters these slides with a small 'x' sign and makes entries in his OSE-checklist and "remarks" column of the lab register. STLS should discuss discrepant slides with the LT, identify the cause of error, if any and provide specific corrective measures.

Checklists

Checklists are developed to assist both laboratory and non-laboratory supervisors during the field visit and to allow for the collection and analysis of standard data for subsequent remedial action. Checklists may be refined to focus on problems that are frequently identified or most likely to occur, such as preparation of stains or errors in grading. Copies of the checklist should be left behind in the unit receiving the on-site evaluation. This will provide written documentation of the visit and findings and will also assist subsequent evaluations to monitor improvements.

Comprehensive checklist for on-site evaluation of DMCs is provided in the annexure A. The checklist contains open, non-leading questions and recommended observations along with objective criteria for acceptable practices. Use of a simple standardized checklist even by well-trained district supervisors (e.g. DTO), can reduce the time necessary to evaluate a laboratory effectively. An example of one such checklist for DTO/ MO-TCs is given in this module (Module 7, page 116).

B. Panel Testing

Panel testing is a method of EQA that is used to determine whether a laboratory technician can adequately perform AFB smear microscopy. This method evaluates individual performance in staining and reading, and not all the laboratory activities. Utilization of panel testing for EQA is considered to be less effective than random blinded re-checking of routine slides because it does not monitor routine performance.

Panel testing is a useful supplement to the system of re-checking of slides. It provides information on the capabilities of the peripheral laboratories prior to implementing a re-checking programme. It can also be used to assess the level of performance or to quickly detect problems associated with very poor performance. The proficiency of laboratory technicians after training can be evaluated.

A panel consists of a batch of stained and /or unstained smears that are sent by the higher-level reference laboratory to the peripheral laboratories for processing, reading, and reporting of results. Panel testing under RNTCP is used for supervisory lab staff of STDCs/ IRLs and DTCs, and will be conducted under the supervision of the visiting lab team during their annual on-site evaluation visit. Panel testing is not performed as a routine in the DMCs, as they will have regular on-site evaluation and blinded re-checking.

C. Random Blinded Re-Checking (RBRC) of Routine Slides

This EQA method provides reliable assurance that a district has an efficient AFB microscopy laboratory network supporting RNTCP. Blinded rechecking is a process of rereading a statistically valid sample of slides from a laboratory to assess whether that laboratory has an acceptable level of performance. This activity is performed once a month for every DMC.

Random blinded re-checking must ensure that:

- the sample contains sufficient number of randomly selected slides to be representative of all slides of the DMC,
- the supervisor (STLS) of the laboratory (controller), must not be aware of the original result of peripheral laboratory technician to prevent bias, i.e. results are "blinded",
- minor false errors are included with major errors for the purpose of obtaining a smaller sample size. The smaller sample size facilitates implementation and sustainability of rechecking programs, and
- Discrepant results are resolved by a second controller (umpire).
- There must be a system to provide timely periodic feedback and improvements to the laboratories that are supervised.

Random blinded re-checking of routine slides from the DMCs is implemented throughout the RNTCP laboratory network. A system utilizing Lot Quality Assurance Sampling (LQAS) method has been successfully pilot tested in a number of districts and this is to be implemented in all districts. The details of the LQAS method are given in the RNTCP EQA document (suggested reading No. 1 on page 217).

The STLS selects from lab register RBRC sample slides for random blinded rechecking (RBRC) on the advice of the DTO (see Table 1). These slides are selected using a systematic random blinded sampling procedure and the results of the slides selected are circled in the Lab register by STLS. The LT will enter the slide numbers that are selected by STLS in 'Annexure B' of the RNTCP EQA protocol (copy of the format at the end of this section as 'Annexure-B') along with results; encloses the annexure B in a sealed envelop; arranges the slides in a separate box supplied by DTO and marks on the top of box as well as envelop with the title: LQAS slides, Name of DMC, TU and the month & year. STLS picks up the box and envelop and hands them over to DTO. DTO will implement the EQA using RBRC and gives feed-back and corrective actions to LT through MO-DMC.

The activities to be performed by DTO at DTC are briefly given below. The details are provided in the box on page 218 (also refer to RNTCP EQA document).

1. Every month, DTO instructs all STLS to collect appropriate number of slides from LTs of DMC in a slide box (See Table 1).

2. STLS should receive sealed envelopes containing the results of these slides in Annexure B

3. DTO receives sealed envelopes with Annexure B and slide boxes from the respective STLS.

4. DTO codes and interchanges slide boxes among STLS, retaining sealed Annexure B in his possession. This is an important activity of DTO and blinding of slides must be ensured by DTO.

5. STLS to read and record results for slides as per Annexure C - one slide box at a time.

6. Umpire reading will be by another STLS and organized at DTC by the DTO.

Table 1 Recommended Annual Sample Size[2]
(80% sensitivity, 100% specificity and '0' acceptance number)

Number of negative slides in the DMC in a year	Slides positivity rate (SPR%)				
	2.5-4.9	5.0[3] –7.49	7.5-9.9	10-14.9	≥15
	Annual sample size of both positive and negative slides (Monthly sample size[4] in parenthesis)				
301[5]-500	243(21)	154(13)	114(10)	89(8)	62(6)
501-1000	318(27)	180(15)	128(11)	96(8)	66(6)
>1000	456(38)	216(18)	144(12)	104(9)	69(6)

[2] Based on LQAS method applied to the negative slides with sensitivity of 80%, specificity of 100%, acceptance number d=0, and 95% confidence Interval. Each sample size was then increased proportional to the positivity rate to yield the final sample size that include both positive and negative slides.

[3] DMCs with less than 5% SPR should analyze the reasons for the same and should undertake the necessary corrective action.

[4] The monthly sample size has been rounded off to the next higher number and annually adds up to equal or more than the annual sample size.

[5] The status of DMCs with Annual negative slides volume (ANSV) of ≤300 should be reassessed. If they cannot be improved then they should be discontinued as DMCs. Till their status is finalized, those DMCs with ANSV less than 301 will use the sample size for 301-500 ANSV as applicable for the respective SPR range. If the ANSV is less than the indicated Annual Sample Size (ASS), the respective DMCs should submit all their slides for blinded re-checking. For example, *a DMC with ANSV <243 & SPR <4.9%, or ANSV <154 & SPR 5.0-7.5%, or ANSV <114 & SPR 7.49-9.0%, or ANSV <89 & SPR 10-14.9%, or ANSV <62 & SPR ≥15% should submit all slides for blinded re-checking.*

7. STLS/DTO/MO-TC to evaluate results and give feedback to each MC (as per annexure D) under information to the CMO/Civil Surgeon.

8. DTO receives a copy of the monthly on-site supervision report from STLS through MO-TC and decides on the next course of action in consultation with MO-TCs.

9. DTO sends a copy of the monthly report on random blinded rechecking to STDC/ IRL/STO every month (as per annexure E), Monthly lab abstract of district, DMC-wise (Annex M for district) and a copy of OSE summary report of EQA (Annex F) to STDC/ IRL every quarter and percentage of DMCs with high false error in the district, in district PMR report to STO/Central TB Division every quarter.

Ensuring blinding of DMC slides received at DTC is a key activity of the DTO.

The EQA activities to be conducted by STLS, DTO/MO-TC are given in Figure 1.

The EQA Guidelines standard for reagents and equipment is given in Annexure H.

This needs to be adhered by DTOs while procuring the items for their districts.

The pattern of errors that are likely to occur, possible causes for these errors and suggested investigation steps to be taken by the RNTCP Lab supervisors including DTOs/ MO-TCs/ STLS are given in Annexure K. DTOs and MO-TCs should familiarize themselves with these in order to effectively supervise the DMCs under their area.

The DTOs and MO-TCs have to report the EQA activities in their respective Quarterly report on Programme Management.

Suggested Reading

1. Central TB Division: RNTCP Laboratory Network: Guidelines for Quality Assurance of smear microscopy for diagnosing tuberculosis, 2004.

2. External Quality Assessment for AFB Smear Microscopy, IUATLD, WHO, JATA, and KNCV, the CDC and APHL, 2002

Procedure to be carried out by DTO for RBRC at DTC:

• Month for RBRC is the calendar month during which the slides were registered in Laboratory Register of the DMC. For this example, the month for RBRC is May 2005.

• Onsite evaluation of all DMCs in the district should be done by the STLSs before 7 to 10th day of next month so that they have collected the samples from their respective DMCs by the 10th of that month during OSE visit. This month is also called the OSE month. All STLSs will hand over the sample boxes and sealed Annexure-Bs of each DMC to DTO.

• DTO will make a roster from 11th of the OSE month onwards giving one or two or three days (based on no. of samples to be re-checked) for each STLS to come to DTC for the re-checking. No two STLS should come for re-checking at the same time. All STLSs are informed of the OSE month's Blinded re-checking roster.

• DTO will code the boxes A, B, C, D or 1, 2, 3, 4....etc as per his convenience. Same DMC should not get same code every month.

• DTO should maintain a register where he would enlist the codes given to each DMC for each of their RBRC months. The register should also show how DTO has allotted the codes to the STLSs. STLSs should be allotted the coded DMC boxes taking care to see that DMC allocation is not repeated to the same STLS who is supervisor of that DMC. Rotation of DMCs amongst different STLSs should also be ensured over consecutive OSE months.

• DTO should keep the sealed Annexure-Bs and the register in safe custody and should not allow staff to have routine access to these.

• DTO should give the coded boxes with blank Annexure-Cs to the assigned STLS (called first controller). MC names and TU names are not written in the Annexure-C at this juncture, only the DMC code is written on it.

• STLSs will do the re-checking in a selected space in the DTC identified for the same (preferably it should not be in the lab of the DTC). After re-checking, STLS will hand over the Annexure-Cs to the DTO.

• After getting results from STLS, DTO transfers the results of LT from Annexure-B to Annexure-C (for each DMC).

• DTO identifies the discordant slides. Discordance for the purposes of identifying the slides for re-checking by second controller (called 'Umpire reader) is any slide with 'positive' smear result of LT (of any grade) being read as 'negative' by STLS and vice-versa and for

'positive' slides having a difference of more than one grade between LT and first controller.

• DTO takes out the discordant slides in a separate box and gives it to an Umpire reader who could be any STLS.

• Umpire has to read more fields before arriving at the results. The format for giving these results to Umpire reading is as follows, which is maintained in a separate note book with DTO as Umpire reading. Results 1 and 2 should not indicate the identity of the either LT or STLS and are interchanged frequently to maintain the confidentiality of the original readers.

RBRC month/ Sl. No.	DMC Code	Discordant slide number	Result 1	Result 2	Number of fields read by Umpire	Umpire reading	Signature

• DTO tabulates the umpire's result in the Annexure C (only for discordant slides). Thereafter the names of MC and TU are entered in the Annexure-Cs (Decoding).

• DTO prepares Annexure-E for the month for the entire district using the results for each DMC from Annexure-Cs.

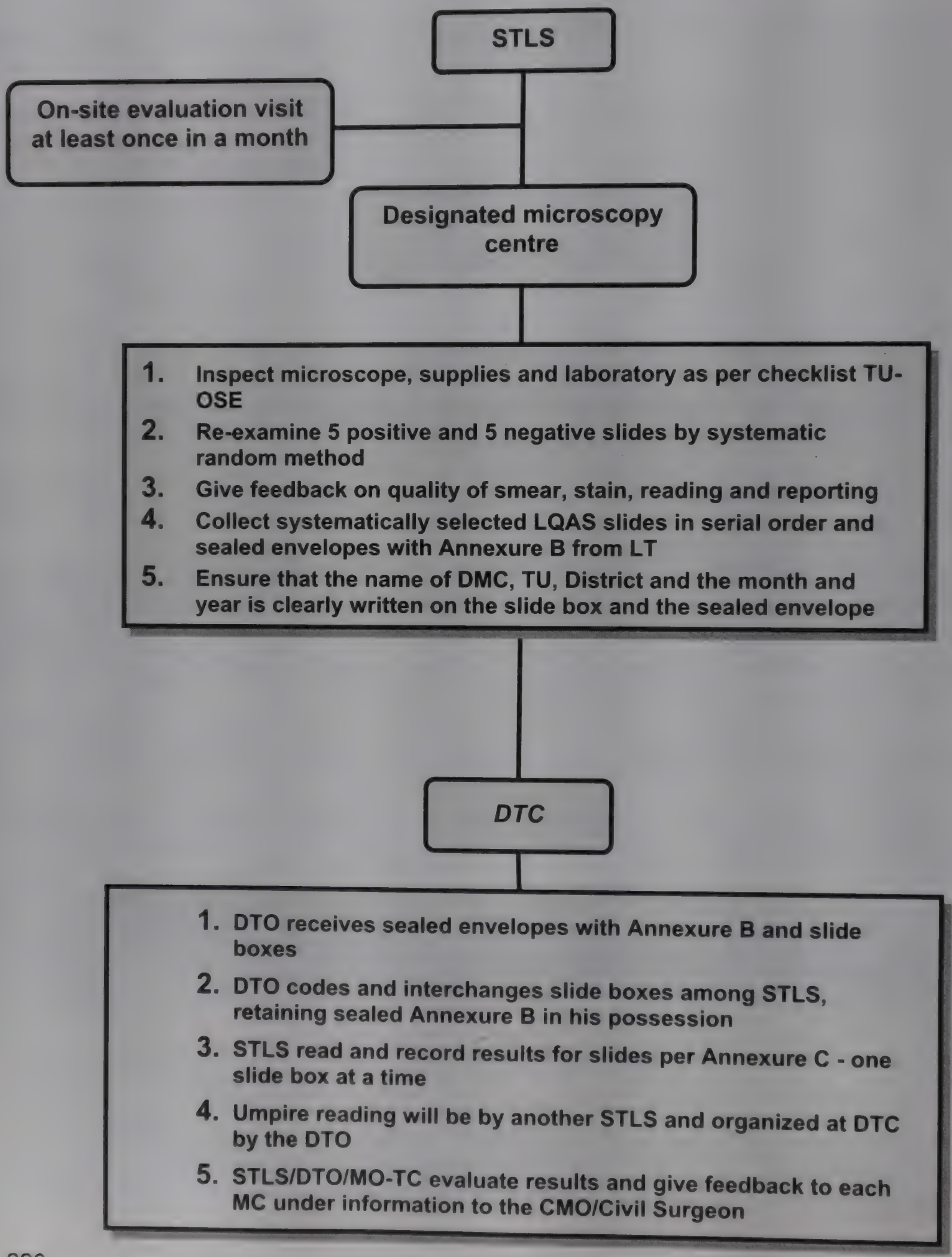
• The results should be communicated to MO of the DMC immediately after RBRC, in Annexure D, not later than one week after umpire reading. He has to identify possible causes of error using Annexure-K, make visits to the DMCs having high false results, identify the possible corrective actions required and persons responsible to take the corrective actions and communicate them to MO-DMC/ MO-TC/STLS in writing.

• DTO is to ensure that the action taken report is received from the concerned official within one OSE month.

• DTO should review these action-taken reports, and decides further course of action, wherever required.

• At the end of every quarter, DTO with the help of MO-TCs, prepares the summary of OSE and RBRC quarterly reports to IRL and CMO of the respective district, based on both his communications and the action taken report.

Figure 1: QA network in sputum smear microscopy - STLS activity



ANNEXURE 1: RECORDING AND REPORTING FORMATS FOR EQA

On-Site Evaluation Checklist for STLS

I General Information

DMC:	
District:	
Number of Technicians:	
Qualifications of current staff: (Separate sheet to be attached to indicating information for each of Lab staff, if they are different from the previous visit)	
Supervisor/MO of DMC:	
Date of Visit:	
Name of visiting STLS:	

II Data on Slide volume for the last month:

This information is necessary to (i) select slides for Blinded Rechecking for the current month and as cumulative number for (ii) next annual SPR, (iii) next annual negative slides and (iv) annual total slides.

Sl. No.	Type of slide (Includes diagnosis and follow up slides)	Number
1	Positive slides	
2	Negative slides	
3	Total	

III Action required as per the previous visit:

IV Current visit particulars

Sl. No	Item	Adequate/ Acceptable	Problems Identified
1	Standard Operating Procedure (charts, manuals and modules)	Y / N	
2	Separate area for TB Lab work	Y / N	
3	Separate platform / tables for specimen receipt / smear preparation / microscopy	Y / N	
4	Power supply	Y / N	
5	Running water supply	Y / N	
6	Waste containers with lid	Y / N	
7	Waste disposal by Autoclave/burning/buried	Y / N	
8	**Adequate Stock and Supply of**: Specimen cups	Y / N	
9	Slides	Y / N	
10	Lens Tissue	Y / N	
11	Spirit lamp or Bunsen burner	Y / N	
12	Filter paper	Y / N	
13	Smearing / Staining Equipment (staining racks, sticks etc)	Y / N	
14	Slide boxes	Y / N	
15	Staining reagents:	Y / N	
15 (a)	1% Carbol fuchsin	Y / N	**Within expiry date Y / N**
15 (b)	25% Sulphuric acid	Y / N	**Within expiry date Y / N**
15 (c)	0.1% Methylene Blue	Y / N	**Within expiry date Y / N**
16	Immersion oil		
17	Label on sputum container	Y / N	
18	New slides used for AFB microscopy	Y / N	
19	Slides labeled with Lab Sl. No.	Y / N	
20	Number of specimens collected for diagnosis and for re-examination for diagnosis	Y / N	
21	Number of specimens collected for follow up examination	Y / N	
22	Smears air-dried prior to fixing	Y / N	
23	Staining procedure	Y / N	
24	Follow grading chart	Y / N	

Sl. No	Item	Adequate/ Acceptable	Problems Identified
25	Are positive results entered in Red ink	Y / N	
26	Control smears are used for each new batch of stains received at DMC	Y / N	
27	Binocular Microscopes	Y / N	
28	Maintenance of microscope	Y / N	
29	Laboratory Register	Y / N	
30	Write TB number of 'Follow up' patients in all cases	Y / N	
31	Write TB number and category of smear-positive patients in the remarks column when this becomes available	Y / N	
32	Laboratory forms	Y / N	
33	Any change in lab staff since last supervisory visit.	Y / N	
34	Personnel	Y / N	
35	Training status	Y / N	
36	Has each staff member participated in refresher training within past two years	Y / N	
37	Safety Practices	Y / N	
38	General order / cleanliness	Y / N	
39	Timely reporting of results to clinicians	Y / N	
40	Does the TB Register contain all smear-positive patients recorded in the TB Lab Register	Y / N	
41	Are the smear results for follow up patients in the TB Lab Register the same as the results recorded in the TB Register	Y / N	
42	Are all slides kept as required by the RNTCP EQA Programme?	Yes	No
43	Are slides collected for EQA, do the number in the slide box correlate with the number in the Lab Register	Yes	No

V. Review of five positive and five negative slides from RNTCP TB Lab Register:

(Systematic sampling, separately for positive and negative slides)

a) Of the 5 Pos slides, number re-read as positive by STLS _____

b) Of the 5 Neg slides, number re-read as negative by STLS _____

Tick appropriate column or write letter as indicated below table

Sl. No.	Slide No.	AFB result / Grade by		Specimen Quality		Staining		Size		Thickness		Evenness	
		STLS	LT of DMC	≥10 WBC/ field	< 10 WBC/ field	Good	Poor (U/O)	Good	Poor (B/S)	Good	Poor (K/N)	Good	Poor
		1		2		3		4		5		6	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

1: Write smear and grade

2: Tick appropriate column

3: Tick if good; write 'U' if under-decolourized, 'O' if over-decolourized

4: Tick if good; write 'B' if too big, 'S' if too small

5: Tick if good; write 'K' if too thick, 'N' if too thin

6: Tick appropriate column

* Please carefully review all discordant slides with the LT

Overall summary (please tick appropriate alternative):

Specimen quality: Needs improvement ❑ Yes ❑ No
Smear size: Needs improvement ❑ Yes ❑ No
Smear thickness: Needs improvement ❑ Yes ❑ No
Smear evenness: Needs improvement ❑ Yes ❑ No
Staining: Needs improvement ❑ Yes ❑ No

Name of STLS:_____ **Signature of STLS:**

Name of LT:_____ **Signature of LT:**

Name of MO-in-charge:_____ **Signature of MO-in-charge:**

Date:_____

On-site evaluation summary of EQA of Smear Microscopy of DMC by DTO
(a copy of this summary to be submitted by DTO to MO of DMC for corrective actions)

DMC:	
Date of visit: (dd/mm/yyyy)	
Visiting STLS:	
Action required as per the previous visit:	

Summary

a) Operational problems (both pending and new)

b) Technical problems (both pending and new)

c) Overall remarks

d) Action Required

Name of STLS: _____ Signature of STLS: _____

Date_____

Remarks by DTO

Signature of DTO

Copy to CMO of the District

ANNEXURE – B: RNTCP SMEAR RESULTS SHEET FOR BLINDED RECHECKING

Microscopy Centre: _____ District: _____

Name of TU: _____ Month/Year: _____

Sl. No.	Lab No.	Result of LT of DMC, including grade for positive smears
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		

Name of Lab. Technician: _____

Signature: _____ Date: _____

ANNEXURE – C: RNTCP EQA of Sputum Microscopy

Worksheet: Blinded Rechecking of DMC Slides

Microscopy Centre Code: _____TU_____

District: _____ Month and Year:_____

Tick appropriate column or write letter as indicated below table

Sl. No.	Slide No.	AFB result / Grade by			Specimen Quality		Staining		Size		Thickness		Evenness	
		STLS	MC	Umpire	≥10 WBC/ field	< 10 WBC/ field	Good	Poor (U/O)	Good	Poor (B/S)	Good	Poor (K/N)	Good	Poor
		1			2		3		4		5		6	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
Total														

1: MC result to be entered under supervision of DTO ***only after*** form completed by STLS
2: Tick appropriate column
3: Tick if good; write 'U' if under-decolourized, 'O' if over-decolourized
4: Tick if good; write 'B' if too big, 'S' if too small
5: Tick if good; write 'K' if too thick, 'N' if too thin
6: Tick appropriate column

Overall remarks:

Specimen quality: Needs improvement ❑ Yes ❑ No
Smear size: Needs improvement ❑ Yes ❑ No
Smear thickness: Needs improvement ❑ Yes ❑ No
Smear evenness: Needs improvement ❑ Yes ❑ No
Staining: Needs improvement ❑ Yes ❑ No

Remarks:

Date of examination: _____ Signature of first controller: _____

ANNEXURE – D: RNTCP Quality Assurance Report on Sputum Microscopy

Microscopy centre: _____ TU and District: _____

Month/Year: _____

Result of MC-LT	Result of controller *				
	Negative	**1-9 AFB/ 100 fields**	**1+**	**2+**	**3+**
Negative	Correct	LFN	**HFN**	**HFN**	**HFN**
1-9 AFB/ 100 fields	LFP	Correct	Correct	QE	QE
1+	**HFP**	Correct	Correct	Correct	QE
2+	**HFP**	QE	Correct	Correct	Correct
3+	**HFP**	QE	QE	Correct	Correct

*** Enter the number of slides on each box**

No. of False result		**Slide No. / Error**
False (-)ve		
False(+)ve		

Name and signature of STLS of concerned DMC: _____

Reporting Date: _____ **Signature of DTO:** _____

ANNEXURE – E: District Monthly Report to IRL on Random Blinded Re-checking

District monthly report to IRL on random blinded rechecking

Sl. No.	DMC name	Annual slide volume*	Annual positive slides*	Slide positivity rate (SPR)*	Nos. of slides rechecked during the month@	HFP	HFN	LFP	LFN	QE	Total number of errors	Remarks
Total for the district												

** For the previous year.*

@ Monthly sample size calculated from Annual sample size for 80% Sensitivity, 100% Specificity and 'd'=0 and Confidence limit = 95%.

ANNEXURE – F: On-site evaluation Quarterly report of EQA from DTOs to IRL

District:	
Quarterly Report	Quarter _____ Year _____

Details of corrective actions recommended and taken			
Sl. No.	**DMC**	**Recommended corrective actions and corrective actions taken**	**Remarks**

D) Any other remarks.

_____

_____

_____

_____

_____

Signature of the DTO

Annexure – H: EQA standard Guidelines for reagents and equipment

1) Standards for Reagents
    a. Specifications:
        i. Basic fuchsin
            1. The chemical name: Pararosaniline hydrochloride
            2. The chemical structure: $C_{19}H_{18}N_3Cl$
            3. Molecular Wt: 323.8
            4. Colour: Metallic green
            5. Dye content: Should be available on the container. Approximately 85% - 88% (to calculate the required amount of Basic fuchsin, divide the actual amount by dye content. For example: Dye content = 85%, actual amount = 10 gms, required amount = 10/0.85 = 11.76 gms.)
        ii. Carbolic acid:
            1. The chemical name: Phenol
            2. The chemical structure: C_6H_5OH
            3. Molecular Wt: 94.11
            4. Melting point: $40^{\circ}C \pm 2$
            5. Purity: 99.5%
            6. Please note: The critical concentration of Phenol in Carbol fuchsin is 5%.
            7. Phenol is highly corrosive, handle with extreme care.
        iii. Methylated spirit
            1. Chemical name: Ethanol denatured + 5% Isopropyl alcohol + 5% Methanol
            2. Molecular structure: C2H5OH
            3. Molecular wt: 46.07
            4. Purity: 90%
        iv. Sulphuric acid:
            1. Chemical structure: H2SO4
            2. Molecular wt: 98.08
            3. Purity: 95-97%
            4. Colour: Clear
        v. Methylene blue:
            1. The chemical name: Methylthionine chloride
            2. The chemical structure: C16H18ClN3S.
            3. Molecular Wt: 319.9
            4. Dye content: Should be available on the container. Approximately 82% (to calculate the required amount of Methyl blue, divide the actual amount by dye content. For example: Dye content = 82%, actual amount = 1 gms, required amount = 1/0.82 = 1.22 gms.)
    b. Immersion oil:
        i. Immersion oil supplied by the manufacturer of microscope with refractive index closer to that of Glass or 1.515

ii. Liquid paraffin (heavy), refractive index of 1.48, a colourless, odourless, transparent, free from fluorescence in day light with relative density of 0.827 to 0.890, viscosity of 110 to 230 mPa s., specific gravity of 0.76-0.78 at 15.5°C.

2) **Shelf life of prepared reagents:** Carbol fuchsin, sulphuric acid, methylene blue reagents may be kept for a maximum period of 4 months.
3) **Identification:** All reagents should have a label with name of the reagent, name of the TU, name of MC, the date of preparation and the expiry date. The containers of Carbol fuchsin, Sulphuric acid, Methylene blue reagents should in addition have the name of the person preparing the reagent. Freshly prepared reagents should not be mixed with old stock.
4) **Equipment:**
    a. Slides:
        i. Size: 76 mm x 26 mm,
        ii. Thickness: 1.3 mm
        iii. Edges: Polished
        iv. Sealed in a moisture absorbing dessicant pack
    b. Balance:
        i. Type: Electronic or Analytical balance
            1. Electronic balance:
                a. General purpose table top laboratory balance, 220-230 V, stainless steel platform, keypad auto calibration function, auto off, prolonged battery life, overload and under load, low battery LCD indicator.
                b. Range: Wide range, 0.01 – 120 gms, (two digit decimal)
                c. Resolution: 0.01 gm
            2. Analytical balance:
                a. Enclosed in a glass box with shutters, dimensions of the box in cms: 46 x 34 x 20
                b. Oscillator type of balance, with levelling screws, two aluminium pans, plumb line for adjusting horizontal level
                c. Weighing capacity: 1 mg to 200 gms, with fractional weight and regular weight in boxes including rider and forceps to handle weights.
    c. Binocular microscopes:
        i. Specifications: As per Expert Committee recommendations.

ANNEXURE – K: Investigation of Errors

Sl. No.	Pattern of errors	Possible causes	Suggested Investigation Steps
1	HFP and HFN	Unusable microscope	Examine a 3+ using that microscope
		Staining problems, poor stains, insufficient staining time or heating	Check stains and staining procedure
		Technician cannot recognize AFB	Test with clear-cut positive & negative slides and good microscope
		Gross neglect, overworked, lack motivation	Exclude other causes
2	HFP with or without LFP	Administrative error	Compare lab-register and verify correct slide number and result? Exclude causes of more frequent HFP, such as low concentration of sulphuric acid, unusable microscope, untrained or inexperienced LTs.
		Poor registration routine	Check accuracy of lab-register and other record keeping
		Staining problems/Fading	Check stains and staining procedure, consider re-staining for rechecking. Assess concentration of Phenol, Basic Fuchsin and Methylene blue.
		Technician unclear on AFB appearance	Look for inconsistent results of suspects (regularly single pos / low positive) in lab register
3	Many LFP, with or without occasional HFP	Problem with controllers Technician unclear on AFB appearance Contaminated stain/ reagents	Evaluate controllers Recheck sample of LFP from laboratory register Test stain with known negative smears, check the distilled water used for stain preparation
4	HFN with or without LFN	Administrative error	Compare lab-register with QC-listing: correct slide number & result?
		Very thick smears and/or poor light	Evaluate quality of smear preparation, check microscope
		Gross neglect	Exclude other causes
		Staining problems	Check stains and staining procedure, consider re-staining for rechecking. Assess concentration of Phenol, Basic Fuchsin and Methylene blue.
		Poor smearing-technique	Test stain with known negative smears
		Problems with microscope	Check microscope with positive slide
		Careless microscopy	Exclude other causes
5	Very high proportion LFN.	Reading error	As above
		Concentrated Methylene blue	
9	Many QE (too low grading)	Poor staining	
		Problems with microscope	

* *Refer RNTCP LT Module, Manual and STLS Module for causes of False Positive and False Negative results.*

ANNEXURE – M: Tuberculosis Monthly Abstract

Tuberculosis Laboratory Monthly Abstract

(Record Numbers)

Month Year 200.	TB suspects examined for diagnosis	TB suspects found positive	TB suspects undergoing repeat sputum examination	TB suspects found positive on repeat examination	Follow-up patients examined	Patients positive in follow up	Total slides examined	Total positive slides	Total negative slides	Signature of LT and STLS
Jan										
Feb										
Mar										
Apr										
May										
Jun										
Jul										
Aug										
Sep										
Oct										
Nov										
Dec										
TOTAL										

Signature of the M.O .

ANNEXURE 2: ROLE PLAYS FOR TB PROGRAMME MANAGERS (STOS, DTOS, MO-TCS)

Introduction

Example Role Play

You are a TB Programme Manager who is meeting with the staff of a TB Unit which is placing a large number of patients on treatment other than DOTS

Sample Key Messages

Role Play Scenarios

1. TB Programme Manager is meeting with a patient who has completed the intensive phase, feels symptomatic relief and refuses to submit further sputum samples
2. TB Programme Manager is meeting with an alcoholic patient who is irregular with DOTS and who complains of health problems
3. TB Programme Manager is meeting with the MO of a PHI where the number of defaulters is higher than expected
4. MO-TC is meeting with an MO and asking why referral of chest symptomatics is low and how the MO proposes to improve it
5. An MO-TC refuses to go for supervisory visits. The DTO meets with him to try to convince him to do so
6. TB Programme Manager is meeting with an MO-PHI who says she has no time to update treatment cards
7. TB Programme Manager is meeting with an MO-PHI because cases are being wrongly categorized
8. TB Programme Manager is meeting with an STLS who has been returning 100% of cross-checked slides as correct
9. TB Programme Manager is meeting with an LT who is reluctant to perform sputum examinations
10. TB Programme Manager is meeting with an STS of a TU with a low rate of conversion/cure

11. TB Programme Manager is meeting with a PHI-in-charge where treatment cards reveal mis-categorization of patients
12. TB Programme Manager is meeting with a private hospital manager to promote DOTS
13. TB Programme Manager is meeting with a district magistrate/ collector to promote DOTS
14. TB Programme Manager is conducting a preliminary visit to an NGO, seeking partnership
15. TB Programme Manager is meeting with an MPW who refuses to work as a DOT provider
16. TB Programme Manager is meeting with an MPW who is afraid of contracting TB herself
17. TB Programme Manager is meeting with an MPW who is not doing treatment observation as per policy
18. TB Programme Manager is meeting with a PHI-in-charge where the number of cases put on RNTCP treatment is lower than expected
19. TB Programme Manager is meeting with a general practitioner enlisting his support to the programme
20. TB Programme Manager is meeting with a general practitioner who is basing his diagnosis only on radiology

INTRODUCTION

For developing good interpersonal communication (IPC) skills, you, the trainer, will need to be aware of the duties that the TB Programme Managers have to perform. These include motivating and gaining participation and commitment from officials, laboratory personnel, public sector physicians and treatment observers.

In this chapter, you will help the TB Programme Manager participants become better at these duties through role plays. Through the role plays, poor IPC skills and good IPC skills will be demonstrated. Demonstrating poor IPC skills develops insight into common behaviours that occur in real situations. Identification of these will help in working towards developing good IPC skills. Therefore, for the role plays to be effective, two sessions will have to be done for each scene; one highlighting poor IPC skills and the other showing good IPC skills.

In order to help the participants understand the importance and potential pitfalls of non-verbal communication, perform the following exercise: Tell the participants to just observe you without making any comments. Then, sit down in a chair with your arms and legs crossed, your body turned slightly away from the participants, and an annoyed expression on your face. Swing your legs and gaze around the room.

After about 30 seconds, ask the participants to describe what they were feeling when you were sitting in front of them. List their responses on the board or flip chart.

Then discuss:

- Do we communicate without words?
- Describe ways that we communicate without words.

Discuss with them that we need to be aware of what we are communicating non-verbally, for example, boredom, dislike, superiority, impatience. We also need to be aware of what our patients and others communicate non-verbally, such as fear, embarrassment, discomfort and shame.

After this discussion, you will tell the participants that you are going to enact a role play scene for them. Tell them to watch for behaviours that depict poor IPC skills.

Next, choose another trainer (if available) or a participant (if no other trainer is available) to play the part of the STS in the following role play. A trainer should play the part of the TB Programme Manager. You will then enact the following role play scene using as many poor IPC skills as possible (for example, you will yell at the STS, you will have them stand while you sit, you will not listen to their side of the issue, you will interrupt them, and so forth).

Role Play Scene

Programme Manager: You are a TB Programme Manager who is meeting with the staff of a TB Unit which is placing a large number of patients on treatment other than DOTS.

STS [and team]: You do not want your TU to look bad so you have been encouraging doctors not to put "difficult" patients on DOTS. You are reluctant to admit this.

After you have completed enacting the scene, ask the participants to list the poor IPC skills. Write these on the chalk board or flip chart. Then, go through each item listed and discuss the ways in which the poor behaviours could be improved. Spend as much time as needed to thoroughly discuss the poor behaviours. Be sure to discuss nonverbal communication elements such as eye contact, posture, nodding, encouraging or discouraging sounds, etc.

Also discuss the messages about the RNTCP that were conveyed during the scenario. Discuss the accuracy of the messages and, for inaccurate messages, discuss how they could be more accurately conveyed.

Once the discussion is finished, perform the scene again using your best IPC behaviours. Afterward, ask the participants to discuss the differences in the two role play scenes. Encourage them to discuss how the two different scenarios made them feel and how they think the Programme Manager and STS felt in each scene.

After this discussion, inform the participants that everyone in the group is now going to practice IPC skills by doing role plays themselves, with the other participants. Tell them that you will be handing out their roles and that they will perform the scene twice; once using poor IPC skills, followed by a group discussion on how the behaviours can be improved, and then again using good IPC skills.

Split the group of participants into smaller groups of no more than six people per group. Make sure each small group contains an even number of participants. Then, choose scenarios from the list of "Role Play Scenarios for TB Programme Managers" which can be found at the end of this chapter and write the roles on separate pieces of paper to give to the participants in each small group. You can also use your own experiences to come up with other role play scenarios and roles. Make sure that everyone receives a role.

After you have handed out the roles, give the participants a few minutes to think about how they will act out their role. Then, have the participants play each scenario in front of their small group using good IPC skills.

During the play by the trainees, circulate to each group to ensure that participants are exhibiting the appropriate IPC skills, such as smiling, sitting with the patient or other person, looking at the other person when speaking, pausing after asking questions, asking open-ended questions, etc. Also, use the following list of "Key Messages" to guide you as you watch the role play. After each role play by the participants, stop and have the group discuss the good ideas and IPC skills that were exhibited in the role play scene, and also discuss things that could improve IPC skills and improve the accuracy of RNTCP messages.

SAMPLE KEY MESSAGES

Listening and understanding

"Hello. How are you?"

"Please sit down."

"How are your children?"

"How is your wife/husband?"

"How are your visits to the Microscopy Centres?"

Demonstrating caring

"Your outpatient department seems to be very busy."

"I know that you have to attend to inpatients and do other routine hospital work."

"I appreciate that you are regularly attending the review meetings conducted at the CDMO level."

"I know very well that you are taking active interest in the Programme."

"It is very good that you are finding time to go to the field for defaulter retrieval action in certain cases."

"How can I help you?"

Motivating and Problem solving

"Your hard work and dedication to the Programme will help save lives by controlling TB in our country."

"How is the achievement of the RNTCP in the recent quarter?"

"Your TB Unit has performed well in the most recent quarter. Congratulations!"

"Your TB Unit has the worst performance in the most recent quarter. How can we work together to improve things?"

"I want your suggestions and opinions regarding the training of NGOs."

"Since you have been working in this institution for a long time, you are the best person to identify active NGOs in the field of health."

"Your personal contacts will help to achieve better results for the Programme."

"The last training programme for the Medical Officers was well organized."

"The improvement in achievement in this quarter compared to the last quarter is definitely due to the teamwork that you have been a part of."

"Your active involvement will help to achieve even better results in the future."

"I am optimistic that under your dynamic leadership we will be able to involve all the private practitioners in your area in the RNTCP."

"I am willing to come with you to meet the IMA president and secretary to finalize the training programme for private practitioners."

ROLE PLAY SCENARIOS

(These are only some examples. Use your own experiences to come up with other scenarios and roles.)

Scenario 1: TB Programme Manager is meeting with a patient who has completed the intensive phase, feels symptomatic relief, and refuses to submit further sputum samples

Write the following instructions on two separate pieces of paper and hand them out to two participants

Programme Manager: You are a programme manager who is meeting with a patient who has completed the intensive phase and refuses to submit further sputum samples.

Patient: You are a patient who feels well and does not want to submit any more sputum samples.

* * *

Scenario 2: TB Programme Manager is meeting with an alcoholic patient who is irregular with DOTS and who complains of health problems

Programme Manager: You are a programme manager who is meeting with a patient who is irregular with DOT. You do not know the reasons.

Patient: You are a patient who is an alcoholic and you do not want to take any more TB medications because you have health problems that you feel are worse with the tablets.

* * *

Scenario 3: TB Programme Manager is meeting with the MO of a PHI where the number of defaulters is higher than expected

Programme Manager: You are a programme manager who is meeting with the MO of a PHI because the number of defaulters is higher than expected.

MO of PHI: You are an MO of a PHI and the TB Programme Manager has asked to meet with you. You do not know why.

* * *

Scenario 4: MO-TC is meeting with an MO and asking why referral of chest symptomatics is low and how the MO proposes to improve it

MO-TC: You are an MO-TC who is meeting with an MO because referral of chest symptomatics is lower than expected.

MO: You are an MO and the MO-TC has asked to meet with you. You do not know the reason for the meeting.

* * *

Scenario 5: An MO-TC refuses to go for supervisory visits. The DTO meets with him to try to convince him to do so.

DTO: You are a DTO who is meeting with an MO-TC who refuses to go for supervisory visits.

MO-TC: You are an MO-TC and the DTO has asked to meet with you. You do not know the reason for the meeting.

* * *

Scenario 6: TB Programme Manager is meeting with an MO-PHI who says she has no time to update treatment cards

Programme Manager: You are a programme manager who is meeting with an MO-PHI because the treatment cards have not been updated.

MO-PHI: You are a busy MO who does not feel you have time to update treatment cards and you do not understand why it is important to do so.

* * *

Scenario 7: TB Programme Manager is meeting with an MO-PHI because cases are being wrongly categorized

Programme Manager: You are a programme manager who is meeting with an MO-PHI because cases are being wrongly categorized.

MO-PHI: You are an MO-PHI and the programme manager has asked to meet with you. You do not know the purpose of the meeting.

* * *

Scenario 8: TB Programme Manager is meeting with an STLS who has been returning 100% of cross-checked slides as correct

Programme Manager: You are a programme manager who is meeting with an STLS who has been returning 100% of cross-checked slides as correct.

STLS: You are an STLS who wants your microscopy centres to have the best records. The programme manager has asked to meet with you but you do not know the purpose of the meeting.

* * *

Scenario 9: TB Programme Manager is meeting with an LT who is reluctant to perform sputum examinations

Programme Manager: You are a programme manager who is meeting with an LT who is reluctant to perform sputum examinations.

LT: You are an LT who is meeting with the programme manager but you do not know the purpose of the meeting. You do not like to perform sputum examinations because you are worried about getting TB from the sputum.

* * *

Scenario 10: TB Programme Manager is meeting with an STS of a TU with a low rate of conversion/cure

Programme Manager: You are a programme manager who is meeting with the STS of a TU where there is a low conversion/cure rate.

STS: You are an STS and the programme manager has asked to meet with you. You do not know the purpose of the meeting.

* * *

Scenario 11: TB Programme Manager is meeting with a PHI-in-charge where treatment cards reveal mis-categorization of patients

Programme Manager: You are a programme manager who is meeting with a PHI-in-charge where treatment cards reveal mis-categorization of patients.

PHI-in-charge: You are a very busy, overworked, PHI-in-charge who is meeting with the TB programme manager. You do not know the purpose of the meeting.

* * *

Scenario 12: TB Programme Manager is meeting with a private hospital manager to promote DOTS

Programme Manager: You are a programme manager who is meeting with the manager of a private hospital to promote DOTS.

Manager of Private Hospital: You are a manager of a private hospital who does not know anything about DOTS but you are very suspicious of anything different for treating TB.

* * *

Scenario 13: TB Programme Manager is meeting with a district magistrate/collector to promote DOTS

Programme Manager: You are a programme manager who is meeting with a district magistrate/collector to promote DOTS.

District Magistrate/Collector: You are a district manager/collector who does not feel you have time for any new programmes in your area. A TB Programme Manager has asked to meet with you.

* * *

Scenario 14: TB Programme Manager is conducting a preliminary visit to an NGO, seeking partnership

Programme Manager: You are a programme manager who is conducting a preliminary visit to an NGO seeking partnership.

NGO Representative: You are an NGO representative who does not know about DOTS. You have many programmes interested in your help and you need to be persuaded that DOTS would be helpful.

* * *

Scenario 15: TB Programme Manager is meeting with an MPW who refuses to work as a DOT provider

Programme Manager: You are a programme manager who is meeting with a MPW who refuses to work as a treatment observer.

MPW: You are an HW who is busy with your work and you do not want to take on another responsibility—DOT.

* * *

Scenario 16: TB Programme Manager is meeting with an MPW who is afraid of contracting TB herself

Programme Manager: You are a programme manager who is meeting with an MPW who is afraid of contracting TB.

MPW: You are an HW who is afraid of contracting TB and you do not want to be near TB patients.

* * *

Scenario 17: TB Programme Manager is meeting with an MPW who is not doing treatment observation as per policy

Programme Manager: You are a programme manager who is meeting with an MPW who is not doing treatment observation as per policy.

MPW: You are an MPW who thinks that it is all right to give the patients their tablets to take home with them.

* * *

Scenario 18: TB Programme Manager is meeting with a PHI-in-charge where the number of cases put on RNTCP treatment is lower than expected

Programme Manager: You are a programme manager who is meeting with a PHI-in-charge where the number of cases put on RNTCP treatment is lower than expected.

PHI-in-charge: You are a PHI-in-charge and the programme manager has asked to meet with you. You do not know the purpose of the meeting.

* * *

Scenario 19: TB Programme Manager is meeting with a general practitioner enlisting his support to the programme

Programme Manager: You are a programme manager who is meeting with a general practitioner who has many TB patients coming to him for treatment.

General Practitioner: You are a general practitioner who believes that referring TB patients to a nearby health centre would affect your practice and you may even lose your patients.

* * *

Scenario 20: TB Programme Manager is meeting with a general practitioner who is basing his diagnosis only on radiology

Programme Manager: You are a programme manager who is meeting with a general practitioner who is giving anti-TB drugs only on the basis of radiology.

General Practitioner: You are a general practitioner who believes that radiological examination alone is sufficient to diagnose TB and give anti-TB drugs.

* * *